

## The Apprentice – Chapter 1 – Remembering

I've re-read Mountain Man. I can't believe I wrote that story. Anyway, a sequel is in order. I'll reintroduce some of the characters:

Ryan Williams, Jr. went to the US Military Academy at West Point after High School. He married Jennifer, his childhood sweetheart. He has his grandfather's weapons, his step father's weapons and weapons that belonged to most of the seniors who had passed on. Ryan was allowed to retire as a Major General after the Chinese invasion. He had just resigned, but a grateful female President and his friend Lance had credited him with 30 years in the service and retired him as a Major General.

Jennifer Perkins Williams is Ryan's wife, a doctor and a microbiologist. She had been made a full-fledged doctor a year after the Russian invasion had ended. Their children are named Ray and Stacy and Roy. Jennifer had discovered a vaccine for the Ebola virus that had prevented most of the world from being wiped out. Because she never completed her residency, she didn't become a physician until a grateful doctor pushed for a year to get the State of Wyoming to give her her credentials.

Michael Jr. and Bill Benton are Jennifer's cousins. Mike is married to Crystal and they have 2 children, Michael III and Nancy. Bill is married to Melanie and they also have 2 children William and Susan.

Benton Village was a community that was totally prepared for any type of disaster, manmade or natural, short of Yellowstone blowing up or an asteroid striking the earth.

Colin Powell had served his two terms as President and retired to New York City. In his own way, Powell had forever changed America. Having suffered no worse under a black President, America was ready to elect the first female President and they did that in 2020. She was a moderate Republican, by the way, and the Republicans held on to control of Congress. Perhaps because of all that had happened to America, the country was finally growing up. It wasn't so popular to be a liberal anymore and issues like abortion and homosexuality and the like were no longer front-page news. America was changing and embracing a new conservatism. The homosexuals went back into the closets and the Congress passed a law outlawing abortions except in three cases: where it was therapeutically necessary, where the pregnancy resulted from a rape and where the pregnancy resulted from incest.

One of the byproducts of the new conservatism was a return to the values that the founders of the country had embraced back when they drew up the Constitution. The right to keep and bear arms was an Individual right and it had nothing to do with militias. The Congress also adopted a new model Criminal Justice System, with a focus on rehabilitation rather on the housing of criminals. There were loud protests in the news media over the new laws, but Congress and the President didn't care. Neither did the American public; they liked the new laws. The days of the liberal press were nearing an end. Thank you God. Oh, and God? He wasn't a dirty word anymore. Prayer returned to

the classroom and 'Under God' returned to the Pledge of Allegiance. The CDC finally came up with a cure for AIDS. The cure attacked the heart of the HIV virus and it didn't matter how much the virus mutated, the cure still worked. After the Chinese invasion the world entered a new age. You remember what they called it? *The Age of Aquarius*.

*When the moon is in the Seventh House  
And Jupiter aligns with Mars  
Then peace will rule the planets  
And love will steer the stars  
This is the dawning of the Age of Aquarius  
Age of Aquarius  
Aquarius!  
Aquarius!*

*Harmony and understanding  
Sympathy and trust abounding  
No more falsehoods or derisions  
Golden living dreams of visions  
Mystic crystal revelation  
And the mind's true liberation  
Aquarius!  
Aquarius!*

*When the moon is in the Seventh House  
And Jupiter aligns with Mars  
Then peace will rule the planets  
And love will steer the stars  
This is the dawning of the age of Aquarius  
Age of Aquarius  
Aquarius!  
Aquarius!  
Aquarius!  
Aquarius!*

*<instrumental and tempo shift>*

*Let the sunshine, let the sunshine in, the sunshine in  
Let the sunshine, let the sunshine in, the sunshine in  
Let the sunshine, let the sunshine in, the sunshine in*

Remember the lady President and what the Admiral thought of her? The Admiral was a naval Aviator who had flown in the First Gulf War. He had narrowly escaped being drawn into the "Tail Hook Scandal" in Las Vegas in September of 1991. "What a Bimbo," he thought, "We finally get a female President and she has hot pants for some damned General (Lance and then Rocky). This will set back women's lib 50 years if it

ever gets out.” Is it ok to call the first female President a Bimbo, just because she acts like one? No offense, Madam Bimbo. She only lasted one term.

Ryan’s right hand man was Gunnery Sergeant Roberts, the man who had taken over when Ray was laid up during the Chinese thing. Ray and Stacy lived for a very long time. Ray was 90 when he passed in his sleep. They stopped expanding Benton Village; the market for survivalist type housing had finally disappeared. They laid Ray to rest alongside of Promise, and a few years later Stacy joined him.

Who is The Apprentice? Ray Williams, Ryan and Jennifer’s oldest. And who might the master be? Gunny Roberts, that’s who. Ray had inherited or been taught Ryan’s skill with a rifle. Gunny didn’t need to teach him that. Ryan had been a member of the Black Knights Rifle Team at West Point. Ray was proficient on every weapon in Ryan’s vast arsenal and let me tell you – Ryan had his grandfathers’ guns, Ray and Stacy’s guns, Steve and Susan’s guns and all of the previous generations’ guns except for Michael and Nancy’s guns, which went to Michael Jr. and Bill.

Benton Village had stopped growing at 160 acres. It was a survivalist community with strict rules about who was allowed to join. If you remember the original story, you should remember those rules. The members of the community were mostly ex-military and ex-LEO’s. Each family had to have enough food for every member of their family for a year and weapons. They were still just as selective about who was allowed to join the community, even if it was the *Age of Aquarius*.

Jennifer ran the medical clinic at Benton Village. She had her share of geriatric patients. There were about 150 homes in the community. It was sort of small and a walled in, closed community. You remember the wall, right? Two layers of concrete block 6’ apart filled-in with soil/rock between the two block walls. The Claymore mines were safely tucked away in one of the bunkers in the event they were ever needed. So were the Heavy weapons, the 120mm mortars, the Ma Deuces, etc. The NSD-A anti-tank and anti-personnel mines had been stored, too. How long does an Age last? Probably only about as long as peoples’ memories.

Ryan was running the family businesses, the grocery, the service station, etc. Benton Village was powered primarily by solar energy in the form of the thin film electrical roofs and solar heating for hot water. There were, of course, the carefully maintained backup generators and so forth, but even the well pump was solar powered. The local gas supply was propane coming from a huge tank and distributed through gas pipe to all of the homes. Everyone heated primarily with wood; such were the rules of Benton Village. Eventually they had walled in the north wall and the west wall and the entire compound was behind a 7’ wall.

Ryan had asked Gunny to take Ray the younger under his wing after Ray the elder had died. At that time, Gunny put an emphasis on Ray completing school and they spent the weekends on the range. Stacy was still alive at that time, but in her 80’s. Her beautiful red hair was grey, but she still mostly had that famous figure. Stacy had died at age 85

and was buried next to Ray and Promise. It was a very sad time when Ray died and even sadder when Stacy died. Ryan was 55 years old when Stacy had died and he had the hardest time of all. You may remember that Ryan was 13 years old when *Mountain Man* started. Ryan was born in 1985 and that could only mean that the year was 2040 when Stacy had been laid to rest. Ray had been 17 when Grandpa Ray had died and 20 when he had lost his grandmother.

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Again, if you read the original story, think of Ryan as Ray and Jennifer as Stacy only brunette. Ryan and Ray's life experience may have been a little different, but not all that much when you consider it. Except perhaps Ryan was part of the thin grey line, a graduate of the US Military Academy at West Point. Ray had been an E-9 in the Army but Ryan had more respect for the NCO than the average officer. Ryan's leg had healed to the point where he was 98%, except in certain weather. He always seemed to know when they were due for precipitation.

Ryan had completed airborne training and ranger training, the same as Ray had. He blown his knee and couldn't jump anymore and then taken a shot to the same knee and gotten out of the Army as a Captain with a functional, rebuilt knee.

Since Jennifer only had a small practice, she had her own laboratory there in Benton Village doing viral research. She was currently working on a project to find a permanent cure for malaria and other mosquito borne diseases. These diseases included: encephalitis, Dengue Fever, Malaria, Rift Valley Fever and Yellow Fever. West Nile Virus was one of six forms of encephalitis.

*Culex pipiens*, the Northern House Mosquito, has a distribution that roughly includes the northern half of the United States. This species' range begins just north of Maine, along the Atlantic seaboard, and extends to the state of Washington in the west with some extension into southern British Columbia. The range along the Pacific coast extends into northern California and then east on a relatively straight line to North Carolina. The species is replaced by *Culex quinquefasciatus*, the Southern House Mosquito, in the southern United States with limited overlap in portions of the mid-west.

While global warming is anticipated to have significant impacts on the Earth in the next century, one indirect impact it could have is on the distribution of arthropod-borne diseases, or arboviruses. It is difficult to predict exactly how these diseases will be affected with changes in climate. However, arboviruses are extremely sensitive to climate change, particularly changes in temperature and precipitation, and as these factors will be greatly altered with global warming, it is expected that arboviruses will be impacted as well. One disease that may be highly affected is malaria, an arbovirus transmitted by mosquitoes. Malaria is a serious disease which exists at epidemic levels in many areas of the world, rendering it necessary to examine how the distribution and severity of malaria may be altered by global warming. Malaria is caused by four species of parasitic protozoa in the genus *Plasmodium*, the two most prevalent malarial species being

Plasmodium falciparum and Plasmodium vivax. The only vectors – organisms that transport and transmit pathogens to other organisms – for Plasmodium are mosquitoes in the genus Anopheles, which contains 400 different species, one-tenth of which are potential vectors for Plasmodium.

There are no natural cases of malaria in the United States and Canada, but worldwide, malaria is a major problem. The other mosquito borne disease was dog/cat heartworms. However, West Nile Virus (WNV), Western Equine Encephalitis (WEE), St. Louis Encephalitis (SLE), Dengue Fever, Malaria and Yellow Fever, are all human diseases transmitted by mosquitoes. The State of California recognized that only some of the many mosquito-borne diseases existed in California: WEE, SLE, WNV, and Malaria. We're talking about a disease spread by parasites in mosquitoes. Mexico had malaria and any state that bordered on Mexico was subject to the spread of the disease. That included Arizona, New Mexico and Texas in addition to California. Remember how the Africanized bees spread from South America?

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Even though she was heavily involved in her research, Jennifer took time out for her children. These diseases would get cured when they got cured and her family wasn't going to suffer on account of her research. Ryan felt the same way and he didn't deprive any member of his family of his time. There wasn't much urgency in running the Benton Village businesses. However, both Jennifer and Ryan sensed that Ray needed some special attention and they had turned to Gunny Roberts. Gunny Roberts was Ryan's age, give or take, and he was a great fan of Clint Eastwood. Consequently he made Ray sit through *Heartbreak Ridge* until he'd nearly memorized the dialogue. Then, Gunny took Ray to the woods and told him to improvise, adapt and overcome.

Ray wasn't stupid and he just went home. That wasn't exactly what Gunny had in mind, but when he thought about, he decided that Ray had just exactly what he'd been told to do. The next time he took Ray to the woods around Jackson, Gunny blindfolded Ray. He gave Ray a backpack and told him to get out of the pickup, blindfolded. By the time Ray got his senses, the pickup was gone and he was about 20 miles from home. Ray looked around and realized that he didn't know where he was. He sat down on a log and looked in the pack. The pack contained a Springfield Armory M-6 Scout survival rifle, a KaBar knife, a compass, a map and a booklet of edible plants. The M-6 was the .410-.22LR version and the only ammo was what was in the buttstock. There was also an empty canteen with a cup and a bottle of water purification pills, and that was it.

Ray looked at his watch and estimated that, based on the elapsed time; he was 20-25 miles from Benton Village. Next he got out the map and drew a rough circle around Benton Village at a 20-mile radius and a second at a 25-mile radius. He could see the Teton Mountains and that gave him a general idea where he was, west of home. He started matching landmarks he could see with the few landmarks on the State of Wyoming highway map. He came close to identifying where he was. Close enough anyway that he could see a source of water. He put on the canteen belt with the KaBar knife and

unfolded the rifle, which he then loaded with a .22LR cartridge and a .410 slug. A stick in the dirt and two observations gave him the general direction of east and he headed to a water supply on the way home.

Gunny was actually rather surprised that Ray was doing as well as he was. He was only about ½ mile from Ray and was watching him through a pair of binoculars. Apparently Ray the elder had imparted a fair amount of wisdom in the young boy before he died. There was a calmness that clearly came from Ryan and a persistence that probably came from Jennifer. He hadn't counted on the vehicle tracks. Ray noticed them, but they only confirmed what he'd already figured out. Gunny was going to need to do better than this to lose him. When he got to a water supply, he read the label on the bottle and put one tablet in the canteen before filling it from the creek. About an hour before sundown he began looking for a likely place to layover for the night. He gathered wood for a fire, some tinder and then cut some pine branches to make a shelter. Next, he gathered berries and such and when he figured he had enough to ward off his hunger, he took out his Bic lighter and lit the fire.

Gunny screwed the pooch on that one. Unfortunately, Ray had waited until almost dark to light the fire and Gunny didn't see how he'd accomplished it. Ray didn't smoke. But Ray the elder always told him to have a source of fire or two in his pockets at all times. He had the Bic, a book of matches and one of those fire-starting sets – 3 sources of fire. More is better right? Was he improvising, adapting and overcoming, LOL? Based on his landmarks, he now knew almost exactly where he was, about 15 miles from Benton Village. By noon the next day he would be back in familiar hunting territory and then it was just a stroll in the park to get home.

Gunny stayed up most of the night keeping watch over Ray. Ray was getting a good night sleep, thanks to Grandpa Ray. When Gunny awoke, Ray was already gone, headed home. There was also a smile face drawn on the dust on his windshield. Gunny caught up with Ray and told him to hop in.

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“You're going to have to do better than that Gunny.”

“So, how did you start the fire, I didn't leave you any flint?”

“I used my Bic lighter. But I had a book of matches, too.”

“Hungry?”

“Yes, but I'm not starving.”

“There is some stuff for you to eat in the glove box.”

“I can wait until we get home, Gunny.”

“Never turn down a free meal kid, didn’t your Grandpa teach you that too?”

“He did, but I don’t want you to think I’m overly hungry.”

“Well give me one of those pastries in the glove box; I’m hungry if you aren’t.”

“Apple or berry?”

“Take your pick and give me the other.”

“You take the apple, I like berry.”

“Figures.”

“This was a fair test, Gunny, but you didn’t check my pockets and you didn’t take my watch. If you want to try again in another couple of days, I’m game.”

“Next time we’ll go a lot further from home. Maybe this test was too easy. Next time I’ll search your pockets, too. But since the wristwatch is something you’re likely to have, you can keep it. That M-6 is yours, a present from your Dad.”

“Thanks.”

“Thank your father.”

“I will. You know that Grandpa Ray had me practically memorize his E&E Manual FM 27-76-1 don’t you? He also had me study FM 3-25.26 Map Reading and Land Navigation, FM 5-33 Terrain Analysis and FM 5-103 Survivability. As long as I have a map and a compass I can probably find my way home. Most people in an E&E situation at least have some idea where they are. Right?”

“Yes, but what if you don’t know where you are?”

“If I had a map I could figure it out eventually. You can’t really ask any more of me than you can ask of one of your Marines, can you?”

“I suppose not.”

“Gunny, there are a lot of things you could teach. Why not teach me to be a Marine?”

“Kid, you have a deal.”

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Marines are tough and mostly young. It really doesn't matter what condition you are when you enter Boot Camp – they make you a Marine. Since the Gunny was in his mid-50's Ray was in far better condition than he was. Gunny led by example and it damned near killed him. Plus, Ray was a far better shot than he was and could disassemble, clean and reassemble every weapon in Ryan's arsenal. Ryan had participated in the Sandhurst competition at the Point and won assembling the M60, if I recall. You may also recall that Ryan had skipped a few ranks, having been booted out of the Army with a blown knee as a Captain and being brought back by his friend Lance as a Major General when the Chinese invaded. It was only a story, you know, but even George S. Patton had been a Captain once.

When Gunny couldn't take any more Marine Boot Camp, he arranged for them to be dropped off about 100 miles from Benton Village. Ray could assemble his own pack and he could choose a handgun and a rifle. Besides a set of ALICE gear with 2 canteens and a fanny pack, that was all Ray could take. Gunny worked on his pack very carefully, planning on 5 days tops to make it back to Benton Village. Even he didn't know the exact location, but it was to be to the east. Ryan dropped them at the Wind River Indian Reservation, blindfold naturally. If they located US 26, and knew east from west it would be easy enough for the two of them to get back to Jackson.

"Do you know where we are Gunny?"

"Not exactly no. You're the one who said with a map and compass he could find his way home. I'm just along to keep you company."

"I figure maybe 100 to 125 miles from home. But I'm not sure which direction Dad drove. So, I guess I'll do what I did last time and draw the circles first. Then, I'll look for landmarks that tell me where I am in the circle."

"Be my guest, Ray."

To get to the Wind River Reservation, Ryan had to drive first to Moran Junction north of Jackson and then southeast to get to the Reservation. Ray knew that they had gone through Jackson but from there he was less certain. If they went north to US 14, they could be near Cody; if they went southeast from Moran Junction, they could be near the Reservation; and, if they went south out of Jackson, they could be in the southern Bridger National Forest. He drew the circles assuming they went to Cody and none of the landmarks matched. Next he tried south and they didn't match a second time, but they seemed closer. The third time was a charm and he announced to Gunny that they were on the Reservation.

"Are you sure?"

"No, but we're heading northwest. Regardless where on the Reservation we are, if we head northwest, we'll hit a highway. Listen, you're the observer Gunny. Observe and if



you have a suggestion fine, but don't make it harder than it already is. I hope you brought enough food."

"I have enough. Why did you bring the cowboy guns?"

"One size of ammo so I don't have to carry so much and had room for other things."

"Like what?"

"You'll see. Grandpa said to never show your hand too soon."

"Ready to go?"

"Nope, it's late Gunny. I think we should make camp for the night."

"You lead, I'll follow, Ray."

"I'll gather firewood if you want to start cutting pine boughs to sleep on."

"Sure. So you want to go to the northwest? That might be taking us away from Benton Village."

"It probably is, but, if we're where I think we are, it's the best shot at hitting a road."

"Then what?"

"We'll figure out which road we're on first and go from there."

"What's for supper?"

"I'm having stew and biscuits. What are you having?"

"I'll have the same."

Everyone was being clever at this stage. Gunny had a GPS and knew where they were. So did Ray, but first he did the exercise and only used the GPS to verify where he thought he was. He was within 5 miles, not bad when he could have been anywhere in a 100 mile radius of Jackson. Ray's pack contained 10 MRE entrees, enough for 10 days, and 5 pounds of GORP (trail mix). His GORP was homemade and contained peanuts, M&Ms, dried fruit and granola. He had his GPS, a compass, map, the M-6 rifle, an extra box of .45 Colt ammo, a Space Blanket, 6 pairs of underwear and socks and several individual packages of cocoa and coffee. He also had a small first aid kit and a sewing kit. His BOB was in his fanny pack and both canteens had been filled at home. He had a few other things, too. Gunny hadn't said what they could carry; only that he got his ALICE gear, including fanny pack and a backpack.

Gunny had 5 complete MREs and a little trail mix. He was wearing a Kimber M1911 and carrying a FAL rifle. He had his BOB in his fanny pack and the GPS, a map, compass, underwear and socks, sewing kit, first aid kit, 3 3,600 calorie lifeboat rations. Each of the individual's BOB was of his own making, so no doubt they varied. If you know where you are, you aren't really lost, are you? However, without the GPS to verify where they were, Ray decided to travel based solely on the information he had developed without the GPS. In this particular instance it wouldn't have made any difference. Ryan had dropped them about 3 miles from a road but hadn't backtracked with the vehicle.

"How well did you know my Grandpa, Gunny?"

"Apparently not as well as I thought I did, Ray. I took over for him during that Chinese thing and finished securing the Village."

"How long were you in the Marines?"

"22 years. I had planned on staying to 30 but when it looked like the Chinese might have plans on the country, I got out."

"It's not like a Marine to run from a fight, why did you do that?"

"Other friends had moved into Benton Village and they needed my help more than the military. Good thing I did, as it turned out. Your Grandpa got so stressed out he almost had a heart attack. Your mother made him stay in bed and I kind of ended up seeing to the defenses getting finished."

"Dad fought the Chinese, right?"

"Yes, he had the northern force and led them into a trap. A Brigade of them spun off and ended up at Benton Village. We stopped them dead in their tracks."

"We haven't had any more wars have we?"

"Not since we beat the Russians and Chinese, no. The Russians used nuclear weapons in the Middle East and wiped out most of the Arabic-speaking people. The US ended up with the Middle East and we sell oil to everyone at a fair price. You mother had a lot to do with the terrorists not wiping out the whole world you know. They had some variation of the Ebola virus and she helped develop the Vaccine. Later they cured the HIV virus and most diseases have been eradicated; everything except for the mosquito borne diseases that she's working on now. The CDC is working on those too and maybe someday we'll be beyond having diseases."

"Grandpa said that diseases were the poor man's nuclear weapon."

## The Apprentice – Chapter 2 – Going Home

“The Iranians are who we think weaponized the Ebola. They thought they had a vaccine, but it didn’t work. By the time the disease had passed and the Russians had cleaned out the Middle East, I suppose about half of the world’s population was dead from one thing or another.”

“What happened in the war with the Chinese?”

“They came into the country on three fronts, south, central and north. You Dad’s friend Rocky had the southern command and your Dad the northern. The central command was under an existing 2-star, I’m not sure I ever got his name. General Lance Soblick had been a ‘firstie’ when your Dad had been a plebe. He had followed your Dad’s career with interest right up until your Dad had been shot and booted out of the Army. Lance knew Rocky too, and Rocky had come out of the war with Russia as a bird Colonel, having received a whirlwind of promotions much as he had. Lance met with the President and made two extremely unusual requests. He wanted Rocky promoted from bird Colonel to Major General and placed in charge of the southern force. He wanted your Dad recalled to active duty at the rank of Major General and to be placed in charge of the northern force.”

“Captain to Major General? Sounds like George Armstrong Custer.”

“Maybe it was in a way. Rocky stopped the Chinese at Blythe, California and moved to join the central command. Using air assets, Rocky and that other General ended the Chinese central thrust. Your Dad kept withdrawing per General Soblick’s orders and the northern Chinese ended up trapped between the American forces. Your Dad had sent out groups to guard two routes, but the Chinese Brigade overwhelmed the group they came up against. We had tank traps and stopped their tanks, but their infantry got through and attacked the Village.”

“What happened then?”

“We all got killed, even you.”

“Obviously not, Gunny. Tell me what really happened.”

“Your granddad came out dragging his M82A1M Barrett rifle and 2 80-round boxes of that Barrett IMI ammo they sold. The east wall was done and filled in; the tank traps were in place and we went to full alert. I sort of felt sorry for the Chinese, the tank traps would put them on foot and your Dad and his friend Rocky were coming to the rescue. Your grandmother was up on top of the community building with your granddad. She had his M24 SWS. Some eager beaver started sniping at the Chinese and I activated the NSD-A mines, both the anti-tank and the anti-personnel, and the battle was joined. We made short shift of the Chinese and they were all dead or dying before your Dad and Rocky got to the Village.

“Then your father resigned, right on the spot. Later when General Soblick was the Chairman of the Joint Chiefs and sleeping with the lady President, they gave your Dad credit for 30 years’ worth of service and retired him as a Major General.”

“After that, what?”

“General Soblick got tired of the lady President and Rocky took his place. He didn’t last long either. I think maybe the lady President was of questionable morals and perhaps a nymphomaniac. She only last one term. End of story, Ray, no more wars since then.”

“What happened to General Soblick and Rocky, Dad’s friends?”

“Retired and moved to Jackson. Your Dad offered them places at Benton Village, but they both turned him down. That other General also retired and is living in Jackson. Makes us feel safer knowing that 3 of the 4 Generals that beat the Chinese are in Jackson and the other runs Benton Village. All 4 of them are members of the thin grey line. That means graduates of the US Military Academy at West Point.”

“Is that why there are tanks in Jackson?”

“Those are those Chinese copies of the Abrams tanks. I think they were called T-109’s. Anyway, they gathered up a 100 of them that hadn’t been destroyed and got all of the Chinese 125mm ammo and they have 50 tanks on either end of Jackson. The military remained at 15 Army Divisions for a few years and now is down to 12 Divisions. The Navy is still nursing their old vessels. They had a dozen Nimitz class carriers, some Ticonderoga class guided missile cruisers and some Arleigh Burke class guided missile destroyers. I think the only submarines they have now are the Virginia class and maybe the 3 Seawolf class plus the SSBN’s and the SSGN’s. The SSBN’s are ballistic missile submarines and the SSGN’s are converted ballistic missile submarines that carry the cruise missiles and deliver Special Forces troops when needed.”

“Have they been needed recently?”

“Only for humanitarian missions.”

“I think that I’d like to be a Marine Officer.”

“Are your grades good?”

“Very good, why?”

“There are a few ways to become a Marine Officer. One is to go to a Military Academy, either West Point or Annapolis. The other way is to go through OCS.”

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Marine officers are not simply leaders; they are leaders of Marines. Since November 10, 1775, they have led the finest military force in the world into battle.

Marine Corps officers are directly responsible for the welfare and job performance of the men and women they command. People's lives often depend on that performance.

The career of a Marine Corps officer has many advantages. The variety of duties, responsibilities and challenges is unlike any found in the civilian sector.

Because enormous responsibility is given to Marine Corps officers, it is critical that college coursework toward a bachelor's degree is underway or completed before beginning the officer commissioning programs.

Depending on whether you are in college or have already completed college, there are two programs you can follow: the Platoon Leaders Class or the Officer Candidates Class.

The Platoon Leaders Class allows students to complete the requirements for Marines commission without interrupting your academic career. For college freshman and sophomores, PLC is two six-week training sessions at the Marine Corps Officer Candidate School in Quantico, Virginia. Juniors attend a 10-week session. PLC training occurs during the summer months.

Travel costs, meals, textbooks, uniforms and lodging are provided by the Marine Corps, and students are paid for their time. Additional financial assistance may be obtained for participation in active duty. Upon graduation with a grade average of C or higher, students are commissioned Second Lieutenants of Marines.

The benefits to becoming an officer while still in college are numerous. You'll receive valuable leadership training during the summer that does not interfere with school-year activities. You obtain confidence and experience in the most committed team environment possible.

You may receive tax-free financial assistance of up to \$7,000 for Platoon Leaders Class participation. In addition, you will earn up to \$2,985 during your training. Most colleges will grant academic credit for your summer training.

College seniors and graduates can become Marine Corps officers by attending the Officer Candidate School (OCS) program. OCS is a 10-week training summer session at the Marine Corps Officer Candidate School in Quantico, Virginia.

Travel costs, meals, textbooks, uniforms and lodging are provided by the Marine Corps, and students are paid for their time. Additional financial assistance may be obtained for participation in active duty. OCC students are commissioned Second Lieutenants of Marines.

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More on Benton Village...

Moving to the acreage imposed a lot of requirements on the prospective residents, too. They were required to have a 7.62×51mm NATO caliber MBR, and 5.56×45mm assault rifle, a shotgun with a 20" barrel, a .22 rifle and plus handguns for all of the adults. An adult was defined as anyone over the age 15. They also had to use the propane fueled steam heat, install the electrical thin film and solar water heater. Finally, they had to have a LP Vapor powered generator and keep a year's worth of food on hand for every member of the family. Joining this community was worse than joining the Mormon Church.

Ryan had added a community center to the original 40-acre tract and except for the fact that some of the original buildings and the propane tanks were on the original parcel each section was self-sufficient. Each section, for example, had its own well and 60,000-gallon water storage. Ryan decided to convert 80 acres of his ranch where it adjoined Ray's 80 acres to additional housing. The summer of 2019 saw the first 36 homes go up and the following year Ryan put in the other 72 homes and buildings. They had to expand the warehouse and build a real grocery store and put in additional infrastructure. The central propane tank held 142,000-gallons and the heat was centrally produced steam heat.

The grocery warehouse had about a nine-month supply of regular food and there was a month's worth on the grocery store shelves. I don't believe I said what the fuel supply was, but they had 4 tanks, all 40,000-gallons in size. Three held #2 diesel fuel and one held 87-octane gasoline. It was a full service station with 3 service bays and a mini-mart. The grocery store didn't carry brand names, except where they had no other choice. Most of the products were quality generic labels, e.g., one notch down from a brand label and probably brand name products with 'house labels'. People who weren't happy with the choices could always go to Jackson to shop. Few did.

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"One more question Gunny, what about all of the diseases that have been eradicated? Would they still make potent weapons?"

"They would, except for one thing, Ray. The World Health Organization eradicated smallpox and quit vaccinating for it. In the end, that turned out to be a mistake of sorts. Several nations maintained the smallpox virus. There are two clinical forms of the smallpox virus. Variola major is the severe and most common form of smallpox, with a more extensive rash and higher fever. There are four types of variola major smallpox: ordinary (the most frequent type, accounting for 90% or more of cases); modified (mild and occurring in previously vaccinated persons); flat; and hemorrhagic (both rare and very severe). Historically, variola major has an overall fatality rate of about 30%; how-

ever, flat and hemorrhagic smallpox usually are fatal. Variola minor is a less common presentation of smallpox, and a much less severe disease, with death rates historically of 1% or less.

“Smallpox outbreaks have occurred from time to time for thousands of years, but the disease was now eradicated after a successful worldwide vaccination program. The last case of smallpox in the United States was in 1949. The last naturally occurring case in the world was in Somalia in 1977. After the disease was eliminated from the world, routine vaccination against smallpox among the general public was stopped because it was no longer necessary for prevention. However, in the aftermath of the events of September and October 2001, there was heightened concern that the variola virus might be used as an agent of bioterrorism. For this reason, the US government took precautions for dealing with a smallpox outbreak.”

“What did they do?”

“The old smallpox vaccine helped the body develop immunity to smallpox. The vaccine was made from a virus called vaccinia, which was a ‘pox’ – type virus related to smallpox. The smallpox vaccine contained the ‘live’ vaccinia virus – not dead virus like many other vaccines. For that reason, the vaccination site had to be cared for carefully to prevent the virus from spreading. Also, the vaccine could have side effects. Most people experienced normal, usually mild reactions that include a sore arm, fever, and body aches. However, other people experienced reactions ranging from serious to life threatening. People most likely to have serious side effects were: people who have had, even once, skin conditions (especially eczema or atopic dermatitis) and people with weakened immune systems, such as those who had received a transplant, were HIV positive, were receiving treatment for cancer, or were currently taking medications (like steroids) that suppress the immune system. In addition, pregnant women could not get the vaccine because of the risk it posed to the fetus. Women who were breastfeeding could not get the vaccine. Children younger than 12 months of age could not get the vaccine.

“The smallpox vaccination provided a high level immunity for 3 to 5 years and decreasing immunity thereafter. If a person was vaccinated again later, immunity lasted even longer. Historically, the vaccine had been effective in preventing smallpox infection in 95% of those vaccinated. In addition, the vaccine was proven to prevent or substantially lessen infection when given within a few days of exposure. It was important to note, however, that at the time when the smallpox vaccine was used to eradicate the disease, testing was not as advanced or precise as it is today, so there may still be things to learn about the vaccine and its effectiveness and length of protection. Now they have a better, injected vaccine that is permanent.”

“I’m going to turn in.”

“Good idea. We have a long walk ahead of us starting in the morning.”

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“What’s for breakfast?”

“Whatever you brought for breakfast, Gunny. I’m eating some GORP.”

“I hate to break open an MRE for a packet of instant coffee.”

“I’ll give you a packet; I have some and don’t drink it.”

“If you don’t drink it, why do you have some?”

“For you.”

“Oh. Thanks. What are you drinking?”

“Cocoa. Drink your coffee and we’ll get on the road.”

“Northeast?”

“Yep.”

“Where do you think we are?”

“In the box formed by US 26, US 287 and state route 789. If we go northeast we’ll hit US 26.”

“Lead the way; I can drink my coffee as we go.”

Ray knew that they were barely on the Reservation and just off the end of River Road. You can look up where they were on MapBlast if you’re curious. Follow state route 132 southwest of US 26 until you hit River Road. It is a very short road and they were less than a mile from US 26.

“If I’m right Gunny, this road is US 26.”

“How will you know?”

“I’m going to look at the road sign on the other side of the road. This sign says Wyoming 132.”

“Well?”

“Do you want to hike home 100 miles or walk into Kinnear and call Dad to pick us up?”

“Let’s walk home, only in a straight line.”



“Give me a minute, to figure a course and guesstimate a distance. Hmm, I’d say west-northwest, about 282½°, and about 108 miles. Are you sure you’re up to this? There are a couple of mountains between here and there.”

“Lead the way.”

“Are you sure Gunny? It’s still 30 miles beyond Jackson to Benton Village.”

“Lead the way.”

Are you sure Gunny? That’s 138 miles and you’re 55, not 20. Is that why they call Marines Jarheads? No disrespect intended. The kid has a map and knows exactly where he is now. Didn’t he wear you out enough during Boot Camp? Testing his survival skills? He has 9 entrees left and most of his GORP; you have 4 MREs left. Either you’re going to end up eating lifeboat rations or you’re going to have to cover 34.5 miles a day for the next 4 days, cross-country no less, through mountains. In Burma during the dark days of May 1942, Stilwell’s stubborn insistence that an attempt be made to re-establish control over retreating Chinese troops put the general and his small staff directly in harm’s way. In the midst of the chaos of a complete Allied military collapse, Stilwell finally was forced to undergo a long march to India with the Japanese snapping at his heels. Are you going to teach Ray about Army history? You were a Marine!

“Follow me. I’ll set a reasonable pace so an old man like you can keep up.”

“Save your breath and march Ray.”

“Yes Sir, Gunnery Sergeant, Sir.”

“Don’t call me Sir.”

“Out of breath yet, Gunny? We’ll stop at Bull Lake tonight so you can do some fishing and supplement your stores.”

“How far is that?”

“Maybe 28 miles give or take.”

“Blistering pace.”

“It will slow down when we get into rougher country. We should take the road. It will get us to Bull Lake one heck of a lot easier. I have a Wyoming topo map if you want to look at it. We’re in Kinnear Valley. If we try to go cross-country, Gunny, we’re going to have to cross a river and I didn’t bring a canoe.”

“Let me see your topo map.”

“We’re right here. There’s the river. This is the Kinnear Valley we’re in. If we try to go cross-country like you want, we’re really going to have a problem.”

“My map doesn’t show this river. Ok, Highway 26.”

“Gunny Highway said to improvise, adapt and overcome. They used a telephone credit card in the movie to call back to the States and call in an air strike. Is thumbing allowed?”

“I suppose that does fall in the category of improvising, yes.”

“Good, you won’t run out of food.”

“What about you?”

“I have 9 entrees left. I’m guessing that you have 4 MRE’s left, right?”

“Yes.”

“What were you thinking?”

“That you’d give up to be perfectly honest.”

“You said one backpack, with whatever contents we wanted, right?”

“I did, yes.”

“Well, I brought a GPS too and I checked my rough calculation and determined that I was within 5 miles of where I thought I was. Besides, I had the topo map and could have narrowed in to almost my exact position without the GPS. My Grandpa and Dad were both good teachers, Gunny. Your rifle is more powerful than mine, but it is heavier too, especially considering that you’re carrying more ammo than I am. I also have the M-6 in my pack with its .410 slugs. How about we stop at the next town up the road and call Dad to come and pick us up. I want to learn more about the Marine Corps Officer Programs.”

“You just said the magic words. I have my cell phone; I’ll call your Dad from here.”

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“I didn’t know that you wanted to go in the military, Ray.”

“Dad, I’ve been thinking about it, but I haven’t reached a decision.”

“I suppose I could call a favor and get you into the Point, if you wanted. But if you want to be a Marine, I could try and use the same favor to get you into Annapolis. Or, you can

go to college and then go to the Marine Corps Officer Candidate School.”

“Did anyone do you a favor getting into West Point?”

“That’s debatable, Ray. In a way, yes; but in another way no. My father died in the First Gulf War. He should have been given the CMH, but he got the Distinguished Service Cross. Your granddaddy Ray was there and saw how he died and he always said it was the bravest thing he’d ever seen in his entire career. If Dad had gotten the CMH, I would have automatically been eligible for a Military Academy. I got in because a Representative promised my mother to right a wrong and gave me the appointment.”

“Grandpa Ryan paid for your admission, Dad. If you help me go to college, I’ll earn my way to a commission in the Marine Corps.”

“I’m going to end up calling you mayonnaise, huh?” (*An Officer and a Gentleman* 1982)

“Huh?”

“It was a role in a movie made before I was born, Ray,” Ryan chuckled.

“Gunny, does everyone end up with someone like Debra Winger when they graduate OCS?”

“Just hope you don’t end up with someone who looks more like Gunny Foley.”

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An applicant must obtain a nomination to be considered for an appointment to the academy. The sources of nomination are the President of the United States; the Vice President; US Senators and Representatives; and the representatives of the District of Columbia and the US territories. Special appointment categories include children of deceased and disabled veterans or of career military personnel, foreign students, regular US army, US army reserve, honor graduates of military and naval schools and ROTC, and children of Medal of Honor recipients. Candidates must be between the ages of 17 and 22 and must meet physical and educational qualifications.

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Ray considered entering the University of Wyoming that fall to major in microbiology. He had to choose between taking the program through the College of Agriculture or the College of Arts and Sciences. The Bachelor of Science degree program in microbiology is organized as an interdepartmental major involving the collaborative teaching, advising, and research expertise of more than 23 microbiology faculty from the Colleges of Agriculture, Arts and Sciences, and Health Sciences. The program is administered by a program director and a coordinating committee, which represent each of the participating colleges. Students may obtain their degree in either the College of Agriculture or the

College of Arts and Sciences. Students interested in obtaining their degree through the College of Arts and Sciences should be aware of their additional requirements. Students interested in obtaining their degree through the College of Agriculture should contact the program director or members of the coordinating committee directly for more information or formal academic advising within the program. Ray opted for the College of Arts and Sciences.

Microbiology is the study of life forms too small to be observed without the aid of magnification; major groups of microbes include the bacteria, fungi (yeasts and molds), protozoa, and algae, as well as the viruses. In addition, related disciplines such as immunology and molecular biology are included because of their historical origins within microbiology.

As such, the science of microbiology is divided into numerous subspecialty areas that reflect not only the individual groups of microbes (e.g., bacteriology, virology, mycology, etc.), but also their significance in applied areas (e.g., medical microbiology/infectious diseases, microbial ecology, food microbiology, industrial microbiology, biotechnology, etc.) or in areas of basic science (e.g., molecular genetics). Throughout its history, microbiology has played a key role in the development of our understanding of basic biochemical and genetic processes, control of infectious diseases, production of increased and improved food supplies, and the production of numerous commercial products. With the development of molecular techniques to construct genetically engineered microbes, microbiologists will continue to make expanding contributions in these and other areas.

Because microbiology is a diverse science, individuals trained as microbiologists find exciting career opportunities in many areas of the basic and applied sciences. Typically, microbiologists are employed in five major sectors: private industry; clinical laboratories; government agencies; universities; and various other settings such as water treatment, food production, inspection facilities, and other public health-related areas. Recent manpower assessment studies at both the national and regional levels have provided evidence for a continuing and expanding need for microbiologists such that successful undergraduate majors completing this program may look forward to exciting careers. In addition, undergraduates trained in the microbiological sciences are well prepared for competitive application to graduate school programs and professional programs in human or veterinary medicine, optometry or dentistry.

Ray was thinking that he could have both a Military career and be a Doctor and microbiologist like his mother. If you want a person with ambition, meet Ray, he has enough for two people. If he went to the Platoon Leaders Class, he'd be a Marine Officer when he graduated from college.

### The Apprentice – Chapter 3 – Meanwhile...

Roles in the Marines are varied, as are the skills that can be acquired. The Marine Corps is a self-sufficient organization with its own engineers, computer programmers, lawyers, weathermen, police, news reporters, and accountants. The two career options closed to Marines are medical careers (doctors, nurses, medics) and religious services, as the Navy provides these functions. The University of Wyoming only offered Army and Air Force ROTC. The requirements for receiving a scholarship specify that a student be more than 17 years old on September 1 of the year he or she enters college and less than 27 upon graduation. Qualified applicants must pass a physical exam and be legally allowed to bear arms in the United States. Academically, applicants need a high school diploma or equivalent, be accepted to a certified NROTC university, and receive a minimum score of 1100 on their SAT or their combined score from English and math section of the ACT must be at least 45.

Upon graduating from NROTC, students enter the Marine Corps as second lieutenants. NROTC participants are committed to eight years of service in the Marine Corps, with at least four on active duty.

The ROTC academic curriculum for Marine-option students requires classes in national security policy and the history of American military affairs in addition to the regular academic requirements for the student's degree. Outside of the classroom, students must attend weekly three-hour sessions of drill instruction, inspection, and lectures. Other activities that NROTC midshipmen participate in include military balls, Fleet Week, parents' weekend, community service, and social outings.

Ray didn't make the cut with his SAT scores for a certified NROTC college. That was only the beginning of his nightmare. The next came when he sat down with the advisors at the University of Wyoming. This occurred before he enrolled. The Army and Air Force ROTC advisors were invited by the faculty to sit in on the discussion.

"Mr. Williams, we included the ROTC advisors because of your stated intent on becoming a Marine Corps Officer. As you know, this University doesn't have a certified NROTC program. We see from your admission forms that your father was an Army officer and your mother is a physician and a microbiologist. Is that correct?"

"Yes sir."

"Excuse me; are we talking about General Ryan Williams?"

"Yes sir."

"You could have gotten into any of the service Academies on the strength of your father's service to the county. Why didn't you follow that route?" the Army ROTC advisor asked.

“Sir, I wanted to earn my commission completely on my own.”

“Mr. Williams, if you would have attended any of the service Academies, I can assure you that you would have earned the commission.”

“Sir, my father offered to help, I declined.”

“Young man you passed on the opportunity to get a very fine education and a commission. Do you mind if I ask whether or not you have a rebellious streak?”

“Sir I don’t mind at all. I’m not rebellious, but perhaps a bit independent.”

“Your mother is Dr. Jennifer Perkins Williams, the young woman who discovered the Ebola virus strain the terrorists used and worked at the CDC in Atlanta on the vaccine?”

“Yes sir.”

“What does your mother do these days?”

“She became a physician’s assistant because she didn’t complete her residency. Eventually she became a doctor. Mom has a small practice at Benton Village and is researching mosquito borne diseases.”

“Both of your parents are quite famous, large shoes to fill. It would seem that you’re trying to wear a combat boot on your left foot and a ballet slipper on your right foot.”

“Are you suggesting that I can’t do it?”

“I’m not suggesting that you can’t accomplish your goal. However, I am suggesting that as presently configured, you have several challenges. The United States Marine Corps is a fine organization and the first on the scene on many occasions. Your desire to become a Marine Corps officer is laudatory. The Navy provides the physicians and religious personnel for the Marine Corps. The Marine Corps is primarily, but not exclusively, an infantry type organization with an air support wing. To become a physician, you would need to complete your bachelors program in microbiology, attend medical school, complete a residency and probably graduate school and a post graduate program. You would be a MD and a PhD and too old to enter the military service.”

“I’d like to suggest that Mr. Williams consider the Army ROTC program. The Army can always use a bright microbiologist at Ft. Detrick. We have the MIDRP, CCCRP, MOMRP and MCBDRP. Those are various programs Mr. Williams that cover all aspects of chemical, biological and medical issues.”

“Everyone who joins the Air Force wants to be a pilot, Mr. Williams. The Air Force needs physicians, too.”

“Most people would have begun to pursue a career like this as soon as they graduated from high school. You’re already 2 years behind the curve Mr. Williams.”

“If you are accepted into the microbiology program which college would you enroll in?”

“The College of Arts and Sciences.”

There were several people in the room shaking their heads. Ray noticed but didn’t take offense. It did, however, get him thinking about his career choice. They gave him more application forms and asked him to submit them. The Army ROTC advisor asked him to give consideration to the Army ROTC program. Ray’s head was swimming. He left Laramie and headed back to Benton Village, more confused than when he drove down.

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“Chaw?” Gunny asked.

“I have enough to chew on Gunny.”

“Not what you expected?”

“The Corps doesn’t have doctors or ministers. They were talking about me spending half of my life in college and being too old to get into the service. Neither ROTC advisor said anything against the Marines, but I had the impression that they would have preferred me to attend a service Academy. I don’t know what to do.”

“Talk to your mother and your father. Either career choice would be a fine choice. Are you sure you don’t what a chaw? It seems to me that you’re already practicing chewing?”

“I can’t tell you what to do, Ray,” Jennifer responded. “If you’re set on a career in the military, I’d advise you abandon your dream of becoming a physician or a microbiologist and pursue that. Or, if you’re mentally committed to becoming a doctor, forget the military. Talk to your father.”

“What did you major in at the Academy, Dad?”

“Military Art and Science. If you attended the USMA and you still wanted to be a physician, you could major in Life Sciences. The Medical Program Advisory Committee (MPAC) is responsible for the evaluation of cadet applicants and selection of up to two percent of each graduating class to be recommended by the Academic Board to the Surgeon General to begin medical school in the fall after graduation from USMA. Cadets applying to medical school are screened by the MPAC during First Class year. Selection is based upon academic records, successful completion of the Medical College Admissions Test (MCAT), interviews, recommendations, and acceptance into an approved medical school. Those selected may attend either the Uniformed Services Uni-

versity of the Health Sciences or a civilian medical school. Those choosing a civilian medical school will receive a Health Professions Scholarship. I thought you weren't interested in my help."

"I may have been wrong, Dad."

"It is too late this year to start, Ray, you need to attend summer school. If you want my help, you've got it. But even my getting you considered for admission still leaves you on your own. The Academy is very selective."

"Could you try, please?"

"You're making a very wise choice. Of course, I'll try. I can get you only so far, you know. After that, you're on your own."

"I wouldn't have it any other way. Thanks, Dad."

"What did your father say?"

"He is going to help me get an appointment to West Point, Mom. I'm considering majoring in Life Sciences. I guess maybe I can have my cake and eat it too."

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"What did you decide?" Gunny asked.

"I decided to ask Dad to help me to get into West Point and I'm considering majoring in Life Sciences. If I work very hard, I might be able to get into medical school. The USMA only selects about 2% of their graduates to go to medical school, so I'm really going to need to work very hard to get the privilege."

"Your Dad was on the Black Knights Rifle Team when he went to West Point. But, let me caution you they don't shoot large powerful rifles. Still, as well as you can shoot you could try and steal some of your Dad's records."

"No qualms about my abandoning a career in the Marines?"

"The Corps lost a fine officer candidate, but they get plenty of fine officer candidates. I think that we should work especially hard to get you as fit as possible. When would you go, next summer?"

"If I'm accepted, yes."

"Good, it will give us both time to get in shape. Your Dad and I talked about summer camp and the better condition you're in when you start, the better off you will be."



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Ryan was on the telephone talking to Lance moments after Ray left his office. Lance told him to hop in a vehicle and get to Jackson. The four of them would get together and talk about Ray's admission to West Point.

"That was fast."

"Lance, Rocky, Paul, good to see you again. The reason I called Lance was that my oldest son Ray asked me to help him garner an admission opportunity for the Academy. Any ideas?"

"What's his GPA?"

"3.6. SAT scores were 1098."

"I can make one call and get him the interview," Lance offered. "The rest is up to him. Is he a good boy? You know what I mean."

"He's smart, and a better shot than I am. But, having a military officer for a father and a physician for a mother has him believing that he wants to be both. Remember Gunny Roberts? He took Ray under his wing and Ray got it into his head that he wanted to be a Marine Corps officer. When he went to the University of Wyoming to check out pursuing a major in microbiology, he realized that a microbiologist and a physician don't belong in the Corps. He talked to Jen and then to me. I pointed out that the Academy offers a major in Life Sciences and that he might be able to be an Army officer and a physician."

"You get him into the Academy and he might get on the Black Knights Shooting Team and break some of your records," Rocky chuckled.

"It's a different world than the one we grew up in fellas," Paul suggested. "So much trouble. It seems to me that it started during the First Gulf War. Your father fought in that one, didn't he Ryan?"

"Fought and was killed. My stepfather Ray Benton fought in the First Gulf War too. He was there when my father was killed. My mother always said I was the spitting image of my father."

"Sorry for your loss, Ryan. There were so many people at the funeral that we didn't get a chance to visit."

"Ray was 90 and Mom was 85. They had a pretty good life together. At least our other children aren't trying to be more than they can. Stacy is in her freshman year at the University of Colorado and Roy will be starting next year, probably at Iowa State University. I don't know why, he could major in Agriculture at the University of Wyoming, too."

“Two kids in college? That’s going to be fairly expensive.”

“Money isn’t an issue, believe me. I have a nagging sensation in my gut that this *Age of Aquarius* is about to end, however.”

“You always had that 6th sense, Ryan. What do you think is going to happen?”

“I have no idea, Rocky. I guess the country is entirely rebuilt, after all of the trouble we had. We have a handle on global warming so I doubt that we’re going to have that kind of disaster. You know what I mean, an abrupt climate change. China and Russia haven’t been a problem since we defeated them. We don’t have any more nuclear power plants since we went primarily to solar and wind energy to generate electricity. They’re still using a lot of the military equipment that they were using when we fought the Russians and Chinese, aren’t they?”

“They finally started to replace the Navy, Ryan. Everything there will be nuclear powered. They started the CVN series of carriers, the SC class of ships to replace the Perry and Burke class ships and the CG class to replace the Ticonderoga class. They’re also building a successor to the Virginia class submarine, a new type of fast attack boat. The Air Force actually took the idea from that movie, *Stealth* and is developing an F/A-37 Talon a Mach 3.5, super cruise stealth fighter-bomber-interceptor with a 4000nm range. Top speed is somewhere in the Mach 4+ range. They’re also working on an advanced heavy bomber, the B-3. It is a Mach 2+ stealth bomber.”

“Rocky’s right, Ryan. But, the Army hasn’t been resting on its laurels either. They incorporated some of the Chinese improvements from the T-109’s into a M1A4 Abrams tank in the ten years following the Chinese invasion. You may recall that the Army seemed bent on the Future Combat Systems for a while. There has been some rethinking done and they’ve gotten away from the high mobility concept. They are maintaining the Brigade concept but things have changed. After two months of review, in April 2005 Secretary of the Army Dr. Francis J. Harvey announced a restructuring of the business aspects of the Future Combat Systems program. The changes were comprehensive and include contractual, programmatic and managerial improvements.

“As originally envisioned, the Future Combat Systems [FCS], the Army’s flagship transformation program, was a networked “system of systems” that used advanced communications and technologies to integrate the soldier with “families” of manned and unmanned platforms and sensors. This highly agile and lethal force would provide the tactical formations required to fulfill the Army’s vision for a *Future Force* (formerly *Objective Force*). The Lead Systems Integrator (LSI), Boeing and Science Applications International Corporation (SAIC), working in partnership with the Army and DARPA, had total systems integration responsibility for the FCS program. The LSI managed the identification, selection and procurement of major systems and subsystems. The LSI also assisted in the development of operational, systems and technical architectures, which provide links to the Future Force. The LSI’s role included leveraging applicable government

and commercial activities to help the program meet its goals. The LSI completed the Concept and Technology Development (CTD) phase in 2003; and the Systems Design and Development (SDD) phase began in May of 2003. Following entry into the System Development and Demonstration phase, the US Army Program Executive Officer for Ground Combat Systems was to take responsibility for systems integration, production, fielding, and sustainment. The Army planned for FCS first unit equipped in 2008 and an initial operational capability in 2010.

“However, they aren’t reducing the tanks down to a 20-ton vehicle. They are more on the order of a 50-ton vehicle with a 125mm cannon and a three-man crew. The Germans perfected the 125mm cannon and we perfected an autoloader. The MLRS is using a newer generation rocket, the ABM was perfected and we have the PAC-IV system. Any future war will be unlike anything we ever envisioned when we were at the Academy.”

“Do you really think we’ll have another war?”

“Maybe, maybe not. We won’t start one, but we’ll damned sure finish it. The concept of nuclear weapons has changed too. We still have them, but they’re all of the neutron bomb variety these days. The fallout caused some long reaching problems. We have a follow on system to the Peacekeeper that has a dozen neutron warheads in each missile. The Minuteman and Peacekeepers have all been retired.”

“I would have thought that 40 years into the 21st Century, we would have gotten past all of those systems.”

“Dream on, General. It is not in the nature of human beings to ever get beyond war. You majored in Military Art and Science. You should realize that the same motivations that have driven people to war for 5,000 years still exist.”

“Possibly. But, my gut isn’t warning me of a war. At least I don’t think it is. You know, we aren’t all that far from Yellowstone here in Jackson and out at Benton Village. Thirty five years ago, there were warnings about another Supervolcano and that island in the Atlantic falling into the ocean and causing a mega-tsunami. We had that Christmas 2004 tsunami that killed about 250,000 people. Mt. St. Helens has erupted 2 or 3 times since the big 1980 eruption hasn’t it?”

“Three that I know of, Ryan,” Rocky replied. “They still haven’t had the big earthquake in California or another earthquake on the New Madrid Fault, either. The number of hurricanes has fallen slightly, but we still get them. And, we still have the occasional big tornado in the Midwest. We’re always going to have natural phenomena to deal with.”

“As close as we are to Yellowstone, a Supervolcano would generate a pyroclastic flow that would wipe out both Jackson and Benton Village.”

“They can’t predict things like earthquakes or Supervolcanoes any better now than they could at the turn of the Century, Ryan. The USGS has opened more Observatories, but all they can do is monitor the condition of the planet.”

“I’ll make the call for Ray and he’ll be offered an opportunity to apply to West Point. The rest is up to him, Ryan.”

“Thanks, Lance. I think that Gunny Roberts already has a program in mind to get him into peak physical condition. I may get him a tutor so he can brush up on his academics.”

“Can’t hurt. Hey, don’t be a stranger. You need to get to Jackson more often.”

“I’ll try.”

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“Gunny, what do you think would happen if Yellowstone let loose with another Supervolcano?”

“Ryan, we’d all be crispy critters. If we had enough advance warning, we might survive, but I rather doubt it. A pyroclastic flow would hit that 142,000-gallons of propane and we’d have an explosion that you couldn’t believe. It would be something on the order of a small nuclear explosion.”

“I think maybe I’ll talk to Jen and Michael.”

“Hell Ryan, Yellowstone might not blow up for several generations.”

“True, Gunny, or it could blow up in 6 months. It has been far too peaceful the past 20 years and my gut is starting to bother me. I talked to General Soblick and he’ll arrange Ray’s opportunity at the US Military Academy. Do you have a program to get Ray in shape for that first summer?”

“I’m going to get both of us in shape. Why don’t you join us? I’m not saying that you’ve gotten soft, General, but it has been a while.”

“I’ll mention it to Jen, too. Maybe she’ll join us.”

◦

“What do you think, Jen? Do you think that Michael and Bill would be willing to at least discuss the possibility of moving?”

“I don’t know about them, honey, but as far as I am concerned, ‘wither thou goest...’”

“What do you think about the possibility of our moving?”

“I’ve done about as much as I can with the northern mosquito, Ryan. If I’m going to continue my arbovirus research, we need to move to one of the southern states anyway. Do you have any particular place in mind?”

“Not really. Perhaps eastern or southeastern Arizona?”

“Why there?”

“Strictly from the viewpoint of where the 169 volcanoes in the United States are located, one of the youngest is in the vicinity of Flagstaff. It has a moderate danger level and first appeared maybe 900 years ago. The only other volcano in Arizona is in north central Arizona and it has a very low risk. However, the further south we are, the better it would be for your research, right?”

“In that sense, yes. Where?”

“Tombstone is just northeast of Fort Huachuca Military Reservation. That would put us quite a distance from any volcanoes and make a military commissary readily available.”

“Is Tombstone in the Sonoran Desert?”

“I’m not sure, but I believe that the Sonoran Desert is mostly south and west of there.”

“What about Bisbee? Cochise, County, right?”

“Yes. I think it is primarily an artists’ community.”

“How far is that from Fort Huachuca?”

“Not really that much further, Jen. A few miles, perhaps.”

“Is it bigger than Tombstone?”

“I think possibly it is, yes. I think it is the County seat.”

“That would suit me perfectly, for my research, of course.”

“Let’s talk to Mike and Bill about this, ok?”

“I’ll call Crystal and set it up.”

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“I don’t think I want to move to southern Arizona, Ryan. What do you say, Crystal?”

“I have so much family here in the area, honey, I agree.”

“I’m with Mike on that one, Ryan. Assuming Melanie agrees with me.”

“Absolutely, Bill. I’m not moving to southern Arizona.”

“Would the two of you be interested in buying out our interest in the stores?”

“Now, that is something I could go for. Bill, do you want to partner up?”

“It all depends on how much Ryan wants for everything.”

“How about we get an accounting firm to audit the records and value the firm? I’m willing to live with whatever they decide if you two are.”

“Are you planning on keeping your horses and other livestock Ryan?”

“The horses for sure. What do you think Jen?”

“The horses only Ryan. We can get boxed meat from the commissary and either cut it ourselves or have it cut for us. As far as Ray going to the Academy, this won’t change a thing. Stacy is at UC and Roy is going to ISU next year anyway.”

“Ok then, we can either sell off the other livestock, or the two of you can buy them. I still have 160 acres of ranch land I need to sell.”

“What about all of those weapons you have put away from 20 years ago?”

“Do you want any of them? We can work something out.”

“I don’t. They always made me a tiny bit nervous. Bill do you want any?”

“No. We have a reasonable number of firearms of our own. We have hunting weapons and our own Assault rifles, so Ryan can take that stuff.”

“Do we have a deal?”

## The Apprentice – Chapter 4 – Moving to Bisbee

Raymond Ryan Williams was accepted at the United States Military Academy. He had several sponsors. Two of them were retired Generals and former Chairman of the Joint Chiefs of Staff and two were retired Army Major Generals. All four of the men were graduates of West Point. He was told that he would be considered by MPAC in due course.

Gunnery Sergeant Leo Roberts worked with not only Ray, but with Ryan and Jennifer to get all of them into shape. Neither Mike nor Bill or their wives was particularly interested. An accounting firm was hired to audit and value the corporation and the families were able to agree on terms. Jennifer and Ryan made several trips to the Bisbee, Arizona area and bought a section of land to the east of town. You should realize that Ryan was a millionaire before he was ever made a Major General and additional inheritances hadn't hurt either his or Jennifer's financial condition. Without even needing to touch the proceeds of the sale of the corporation, Ryan and Jennifer bought the land and had a thoroughly modern lab/medical facility erected. It was more lab than medical facility.

Jennifer didn't need a level IV containment facility. Nevertheless, she had one, albeit very small. They had constructed a facility with 5 layers of basements with a clinic and basement constituting the upper levels and the increasing containment levels lower. Ryan was in charge of building the home and he went Ray and Stacy several levels better in terms of safety and security. The move to Bisbee occurred during the spring of 2042. Technology had advanced greatly in the intervening years. The latest generation of solar panels generated many times more electricity than the panels that Ray had used in Benton Village. Storage technology had also advanced several generations and Ryan was able to store 5 times more electricity in the same space as it had taken to store 20kw of electricity.

The herd of Arabian horses was large, requiring a large barn and providing even more roof area for additional solar panels. When one considered the roof of the barn, the roof of the clinic and the roof of the home, plus the advances in technology, they were generating at least 100kw of power and able to store 100kw of power in the storage units in the shelter that Ryan had constructed beneath the home's basement. One should also think in terms of a tunnel connecting the barn to the tunnel connecting the second containment level of the clinic to the shelter. Gunny wasn't a rancher; he was a retired soldier so Ryan put him in charge of security for the compound. Ryan and Jennifer bought all three of their children the latest model hybrid diesel electric vehicle. They were SUV's that got about 60mpg.

Since we haven't visited with Stacy and Roy, its past time they're introduced. Stacy was the spitting image of Jennifer, about 5'6 with a figure to die for. Jennifer, like her late mother-in-law Stacy kept in good shape and at 57 was in even better physical condition than Stacy had been at the same age. Gunny Robert's program of exercise hadn't hurt either. Young Stacy was a straight A student and entering her sophomore year at the University of Colorado at Colorado Springs. She was majoring in Computer Engineer-

ing. Stacy was like her mother and had learned to shoot several weapons in Ryan's arsenal. She wasn't near the marksman as Ray, but neither did firearms bother her. Her SUV, as were the others, was outfitted with a storage container, winch and extra fuel tanks. Ryan had gone all out trying to insure that should his children ever find themselves in a situation where they needed to bug out, they had the means. At 60 miles per gallon and with 100-gallons of diesel fuel, they could make it all of the way across the country and most of the way back.

The box was essentially a large BOB and it contained a Kimber .45ACP pistol, an AR-15 short stroke gas piston rifle, ammo, food and several other essentials including food, water and a medical kit. Jennifer made certain that all three of their children were well schooled in CPR, etc. Their training approached that of a Combat Lifesaver and the medical kit reflected their level of training. The only difference between the boys' boxes and Stacy's box was the addition of feminine hygiene supplies to Stacy's. The only problem with Ray's vehicle was that it was in Bisbee, Arizona rather than at West Point. Ryan wasn't worried about that. When he had been at the Academy, there had been several problems and the Academy took care of its own.

Roy was a lover of horses and wanted to be a vet. That's why he'd chosen Iowa State University. The DVM School at ISU was next to none. His career path was planned to lead him in that direction. His Dad had it wrong, but Dad was Dad, so why try and explain? Jennifer knew of Roy's aspirations and approved. She thought that Ryan also knew or she would have explained. They had originally started with Ray's Stallion and Stacy and Ryan's mares. Those three animals, together with other Arabian bloodlines supplied by Mike and Bill's stallions had allowed them in the many years to build a herd approaching perhaps 100 horses. All of those horses were pureblood Arabians too. Even if Roy didn't have a Vet Med practice, he'd have a large herd of horses to attend to.

Roy was every bit as bright as Stacy when it came to hitting the books and he took after Ryan even more than Ray. On the other hand, Roy didn't have the independent spirit that Ray had. Once Ryan and Jennifer had hooked up in High School, Ryan's grades had been straight A's. Anything that interested Ray was an A subject for him too. However, if he found the class boring, he'd occasionally get a B. This accounted for his less than satisfactory grade level average of 3.6. Encouragement hadn't worked with Ray, he was simply too independent. They didn't push him either. Maybe they should have, but they didn't.

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To solve the problem they had with a herd of 100 horses, Ryan and Jennifer hired a vaquero to take care of the herd. The young man's name was Ramon and he was married to Maria. Ramon and Maria Vasquez had one child, Teresa, and Maria was expecting their second child, hopefully a boy this time. Rather than fool with building them a home, Ryan got them a doublewide mobile home, similar to the one he got for Gunny. Ramon had worked for a man who raised draft horses and had talked to Ryan about the



possibility of adding draft horses to the herd. Ryan, you may recall, had been riding most of his life, but always Arabians. He talked it over with Jen and she suggested that maybe 2 stallions and 6 mares, Belgians, would be acceptable. Ryan told Jen to work with Ramon and get the horses.

One thing had led to another and before Ryan realized what was happening, Jen had bought a wagon and of all things, a stagecoach. The herd of horses proved to be as much and more than Ramon could handle and they hired a second vaquero. Ryan still designed a home that relied on wood for heat and that presented a bit of a problem. There aren't a lot of forests in the Bisbee area. Ryan ended up getting firewood through a company in Hereford, Pioneer Firewood. Hereford was reasonably near Fort Huachuca.

Carlos Ramirez was the other vaquero and he was single although about Ramon's age, just under 30. He too had worked for the draft horse breeder and since the two men worked well together, they could handle nearly 110 horses. And when they couldn't, they'd draft Gunny Roberts. Before he'd retired and moved to Benton Village, Gunny hadn't ridden horses. However, since most of the residents did, he'd learned. He sat a saddle pretty good for a man who didn't particularly like to ride. He'd finally caved in, after the move to Bisbee, and bought western style clothes. However, he didn't go totally cowboy, he hung on to his Kimber M1911.

Ryan had been in to see the Sheriff of Cochise County and discussed CCW's. The Sheriff explained the law to Ryan and pointed out that in Arizona the Department of Public Safety issued the CCW's. Ryan presented his Wyoming CCW and the Sheriff told him to append a copy of everyone's Wyoming CCW's to the application for the Arizona CCW. He also explained that with a few exceptions, as long as a portion of the weapon was visible, it wasn't considered concealed in Arizona. That also applied to weapons in luggage. The Sheriff didn't think there would be any problem getting everyone on the ranch a CCW. It may have been a week or more after Ryan was in to see the Sheriff that he pulled into the ranch.

"Are you the same Ryan Williams that was involved in that fracas with the Chinese about 20 years ago?"

"Afraid so, Sheriff. Is there a problem?"

"Not at all, General Williams. What brings you to this part of the country? You lived near Jackson, Wyoming didn't you?"

"We did, yes. I have an uneasy feeling about that area Sheriff. Back when we were much younger, there was talk about a Supervolcano at Yellowstone. I can't put my finger on anything specific, but I got uneasy and with Jen working on viral research, we needed to move south anyway."

"What type of research is she doing?"

“Mosquito borne illnesses. Malaria and things like that.”

“They have some malaria down in old Mexico, you know.”

“That what she said.”

“That’s quite a string of horses you have. Arabians?”

“Except for 8 new draft horses we picked up recently, yes.”

“You have Ramon and Carlos working for you?”

“Yes, they seem to be pretty good hands.”

“They’re as good with horse flesh as anyone in the area. Did Maria have her baby yet?”

“I think she’s about 8 months along. Ramon sure wants a boy.”

“Are Ramon and Carlos going to apply for CCW’s too?”

“Is there a problem?”

“Not really. Ramon had a juvenile problem, but that was years ago. Carlos has never been in any trouble. If you want to drop the applications off at the office, I’ll write a cover letter and see if we can get the Department of Public Safety to expedite the applications.”

“They’re all in the living room ready to be mailed. I’ll get them for you, Sheriff.”

“Are you planning on building a village like Benton Village down here?”

“I hadn’t thought about either way, to be honest.”

“What’s that building over there?”

“That’s our medical clinic and my wife’s laboratory.”

“Is she licensed to practice in Arizona?”

“Not yet, but she’s applied. Come on, Sheriff, I’ll introduce you.”

“Jen this gentleman is the Sheriff of Cochise.”

“Funny, he doesn’t look a bit like John Bromfield.”

"I'm Sheriff Randy Garner, Doctor. I'm pleased to meet you. My, aren't you the lovely lady."

"Thank you, I work at it," Jennifer said slipping her arm into the crook of Ryan's arm.

"Do you folks have children?"

"Three, Randy. Ray is at West Point in his plebe year, Stacy is a sophomore at Colorado State University at Colorado Springs and Roy is attending Iowa State University in his freshman year."

"Two freshmen and a sophomore?"

"Ray was undecided what he wanted to do. He's 21. I think maybe he's trying to combine both of our careers into a single career."

"An Army Doctor? I didn't know they taught medicine at West Point."

"There or at private colleges, yes. If he's accepted into the program, he'll probably be a 30-year man. He'd have 4 years of military academy, 3 years of medical school, 3 years of residency plus the remainder of his service obligation. By the time he's finished, he'll be halfway to retirement."

"If he gets home on leave, I can process an application for him too."

"Thanks, but he won't need one for the time being."

"I can't help with your other two until they're 21."

"Just so you know, they both have weapons in their SUV's. The weapons are under lock and key, however."

"What do they have?"

"Kimber M1911's and AR-15's."

"I'll see what I can do to expedite these applications. Nice to meet you Doctor."

"Sheriff."

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"What was that all about, Ryan?"

"Politician. Trying to get on the good side of the famous General and his famous wife."

"I'd be very happy if no one recognized our names."

"You and me both, Jen. I sure as hell never set out to be famous. All I ever wanted to do was be a Ranger."

"Like your Dad?"

"Just like my Dad, yes, except not dead. Ray was Airborne and a Ranger too. But he blew a knee and eventually ended up in supply."

"I can still remember that jump. I was scared silly."

"You know, since Gunny has had me doing the exercises, my knee is a lot better."

"Actually it never bothered you that much anyway. I still don't see why the Army booted you out."

"It didn't heal fast enough and I couldn't pass the physical exam in time."

"Why don't you pull some steaks out of the freezer and invite Gunny, Ramon, Maria and Carlos to dinner?"

"Sure, I'll pull 6 steaks out and talk to them. Baked potatoes, too?"

"I'll put together a salad, Ryan. You know, I'm not so sure I like the Sheriff."

"What was there about him that bothered you?"

"Do you remember the Sheriff in *First Blood*? You know the one that gave Sylvester Stallone the hard time? Brian Dennehy, I think."

"Sheriff Will Teasel?"

"That's the name, yes. This Sheriff Randy Garner reminds me of him. Will you run to the store and pickup up some lettuce for a salad?"

"Need anything else?"

"No. I think that's all we need."

"I'll check and get anything else I think we need."

"Ok thanks. I've got to get back to my lab. I'm not sure, but I think I may have stumbled onto something about the Plasmodium."

"It's Greek to me."

“Latin, actually.”

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After Ryan talked to everyone and they accepted the invitation for dinner, he took out the steaks and headed to the store to pick up baking potatoes, sour cream, more butter, salad makings and extra dressings. He realized that with Jen spending, as much time as she had been lately on her research they needed to think about hiring a housekeeper and/or cook. Even having invested a substantial sum in the lab/clinic, house, shelter and barn, money wasn't any particular issue. In the first place, he had invested very wisely, first in gold and then in other things. In the second place, there had been inheritances for both of them from Roy, David and Rose, Hazel, his Dad, Ray and finally his mother. Plus, Ron and Rosemary had left Jennifer well off too. It had been over twenty years and Benton Village had proved to be a very good investment for both Ryan and Ray.

The Sheriff had given him an idea, probably without intending to. Lance, Rocky and Paul were still in Jackson and if Yellowstone would be a problem in the future, they'd be one heck of a lot better off here than there. As far as their souvenir T-109 tanks went, they could either leave them in Jackson for what passed as a local militia or bring them to Bisbee. That would most certainly get Sheriff Randy Garner's attention. The Chinese version of the Abrams went about 75 tons each and they had a nominally larger 125mm cannon. The engine used by the Chinese was a 1,800hp diesel engine, which together with the additional weight of the gun and the Chinese version of the Chobham armor accounted for the additional weight. Both Chinese tanks had a 3-person crew and carried 42 rounds for the cannon. Secondary weapons include a 7.62mm coaxial machine gun and a 12.7mm air defense machine gun mounted on the commander's cupola.

The Chinese type 98 tank, its predecessor, weighed about 52 tons and was powered by a liquid cooled, turbocharged 1,200hp diesel derived from Germany WD396 diesel technology, giving a power-to-weight ratio of about 23hp/ton. The newer model T-109 had a power to weight ratio of 24hp/ton. While the Abrams had started out with a power-to-weight ratio of 25hp/ton, by the time the US had gone to the M1A2 that was down to 21.6 hp/ton. The M1A3 version of the Abrams had gone to a modified version of the Honeywell LV100-5 engine that was also rated at 1,800hp and it had increased in weight to the same 75 tons as the T-109. It, therefore, had the same 24hp/ton as the Chinese T-109. The Crusader self-propelled howitzer that the US had dropped in 2002 had weighed 50 tons and used the original LV100-5 engine producing a ratio of 30hp/ton. That meant that the original LV100-5 engine also had an output of 1,500hp. Lance and the others hadn't said anything about what the Army was doing about a 155mm howitzer and so as far as Ryan knew, they were still using the Paladin.

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“Lance, Ryan. How are things in Jackson?”

“Same stuff, different day, Ryan. What’s up?”

“First I wanted to thank everyone for sponsoring Ray. He’s a plebe at West Point. I don’t imagine many young men have 2 Major Generals and 2 Generals bucking for them to get an appointment.”

“Ryan I was more than happy to do that. So were Rocky and Paul. Did Jen and you get settled in Bisbee?”

“We did thanks. That’s part of the reason for my call. The local Sheriff was around last week and asked me if I was planning on building another Benton Village. At the time, I hadn’t given it much consideration, but since, I’ve gotten to thinking about Yellowstone and would like it very much if the three of you and your wives could fly down here to Bisbee and visit the ranch.”

“Is it warm or hot down there? It’s pretty frosty here in Jackson.”

“You might be surprised. It’s October and the average daily minimum temperature is about 51° and the average daily maximum temperature is about 76°. It is a semi wet month with about 0.9” of precipitation.”

“Sounds like good golf weather.”

“Every month is good golf weather down here. June is the hottest month with an average max of 90°. January is the coldest month with an average high of 60° and low of 34°.”

“Are you working for the Chamber of Commerce these days?”

“No, but that is where I got the weather information. June and July are both about 90° months and August cools off to about 87°. The elevation is about 5,000’MSL.”

“I’ll talk to the others and let you know. Is there anything in specific you’re suggesting or are we just coming to visit?”

“Both. Pleasure first but I actually do have a proposition.”

“I’ll get back to you Ryan, and thanks.”

“Talk to you later Lance.”

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“Ryan, Lance. Can you tell me what are there for accommodations in the Bisbee area?”

"We have a 5 bedroom home, Lance. Jen would never forgive me if we didn't have you stay here."

"I'd sure hate to impose."

"I hired a combination cook/housekeeper for Jen. She's hit on something in her research and I've decided that I could afford to give her a break. She's been putting in 16 hours a day and I think she needs it."

"What is she working on?"

"Malaria."

"And you say she's making progress? Wonderful. How about next Monday? You could pick us up at Bisbee-Douglas International around 1400."

"I'll be there, Lance. We're both looking forward to seeing you fellas and your wives."

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"What about your pilot and copilot?"

"You're looking at them, Ryan. Paul was the pilot and I was the copilot," Rocky replied.

"When did you take up flying?"

"I guess that we didn't mention that, did we? Paul has been flying for years and is instrument and multi-engine rated. It's his aircraft. I took up flying 5 or 6 years ago and have an instrument rating and am also multi-engine qualified. I have about 100 hours in Paul's plane."

"I have had a brisket on since yesterday. I know this is Arizona, not Texas, but you might be surprised. We'll get you settled and give you the grand tour before dinner."

"What was the other matter you wanted to talk to us about?" Lance asked.

"I can bring that up after dinner, Lance. "

"We can skip the house. Let's go down to the clinic and pry Jen out of her lab."

"Jen, company is here."

"I'm coming, Ryan. Let me put these samples away and I've give everyone a tour of the clinic and the lab."

“Ok. Well, this is the clinic. We have 6 exam rooms, a small hospital ward for up to 6 people and a cafeteria of sorts in the basement. Let’s go down there now.”

“Wow, do you have enough medical supplies?”

“Actually no. They expire and I only keep an appropriate amount for a very small hospital. However, as you can see, there is room for much more. Let’s go down to containment level 1.”

“Ok, this is containment level 1. Below us are level 2, level 3 and level 4 containment labs. The labs are nearly alike except that each level has a more secure set of controls and environmental considerations. Let’s go down to level 2 and take the tunnel to the shelter under the house.”

“This ought to be interesting,” Rocky grinned.

“That tunnel there goes to the barn. This is the tunnel to the shelter. It’s not that far or I’d have golf carts or something for the trip. Here we are, check it out and tell me what you think.”

“What is your occupancy rate on this shelter, Ryan?”

“10 persons for one year. I haven’t finished stocking it yet. When I’m done it will handle 10-persons for 5 years.”

“Pretty impressive. Only a small generator?”

“Primarily solar power, but that’s a 100kw diesel generator and I have 3 40,000 gallon tanks of diesel fuel, one 30,000 gallon propane tank plus a smaller 500-gallon farm tank of gasoline. Let’s retrace our steps and check out the barn.”

“Damn, this is a large barn. Doesn’t smell either.”

“There is enough room for 120 head of horses.”

“Wow, how big is it?”

“A little over 20,000 ft<sup>2</sup>. I have about 20,000 bushels of grain and several thousand bales of hay in the loft. The stalls are prefabricated and I had a contractor erect everything. The standard stall is 12’ square, the 14’ square stalls are for our draft horses and the 10’x14’ stalls are for foaling. There are 12 of the 14’ square stalls, 4 foaling stalls and 120 regular 12’ square stalls. The building is expandable and aisles take up the remainder of the space. It is essential prefabricated.”



## The Apprentice – Chapter 5 – An Expansion

“How about some dinner?” Jennifer asked.

“That was excellent, my compliments to the chefs. Now, what did you want to discuss with us?”

“Moving to Bisbee.”

“So you are thinking of putting in another Village?”

“I wasn’t but, there’s that gut thing I have and the weather here in Bisbee is far better than the weather in and around Jackson. Fort Huachuca is only a few miles away and we mostly shop the commissary there. I’m guessing that if you use the commissary, you have to go to F.E. Warren AFB, right?”

“True, and it’s a shame. We usually make an outing of it however and take in a show in Denver or in Cheyenne.”

“The section of land that abuts up against this section to the east is for sale. Would you be interested in a small acreage?”

“Is there enough room in this area to build 3 more homes?”

“There is, yes. If you were interested, we could erect 3 more homes and equip them the same as ours is equipped.”

“Bomb shelters, tunnels and things like that you mean?”

“Exactly. I don’t know how you feel about people that think of preparing ahead for some possible disaster, natural or man-made. But, that was what Benton Village was all about. The major problem I began to see with Benton Village was Yellowstone. The Village has shelters for everyone, but that 142,000-gallon propane tank could get hit with a pyroclastic flow and explode. Gunny said it would be like a small nuclear explosion. Anyway, Jen’s work required that she come south to study the other mosquito stain and we’re almost in Mexico here.”

“Speaking of which. Jen, Ryan said you were making some progress. What’s going on with that?”

“Lance, I isolated one of the Plasmodium involved with malaria and am getting close to a breakthrough that would hopefully eliminate malaria forever. Until I can examine all 4 strains of Plasmodium involved, I won’t know for certain. So far, the results look promising.”

“Interesting. There’s no rush about our deciding is there?”

“Not really, I’m picking up the second section of ground regardless. With the size of our herd, we could use the room. Subject of course to Jen’s approval.”

“You must have done very well over the years with your investments.”

“I did, Paul. I bought gold cheap and sold it high and more than doubled my money. I’ve been extremely selective and have averaged doubling my money about every 5 years. On top of that, there were several inheritances, some small, but most large. We don’t really have to work and the pension that Lance arranged for me as a retired Major General with 30 years of service is much more than we need to live on. The kids are all in school, West Point, University of Colorado and University of Iowa. That SUV outside is Ray’s and once he can have a vehicle at the Academy, he’ll drive it back. They’re a diesel electric hybrid that gets about 60mpg. They have been modified and have a cruising range of up to 6,000-miles.”

“Who makes those?”

“Isuzu. They build them here in this country.”

“What kind of investments are you into these days, Ryan?”

“I have a considerable amount of gold and silver and some blue-chip stocks.”

“If you’re in gold, you must really believe that we’re due for a disaster.”

“I do.”

“We’ll talk it over and let you know. What’s on the schedule for tomorrow?”

“Golf, I suppose. I never really got into it, but I play a round occasionally. I belong to the Turquoise Valley Country Club, but we can also play at the Mountain View Golf Course at Ft. Huachuca. There are several courses in the area.”

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“This proposal of Ryan’s is highly speculative. Yellowstone hasn’t rumbled in a very long time. I jumped on the Internet last night and they haven’t had a quake in about 3-4 years,” Lance mentioned over breakfast.

“I find that to be interesting, Lance. Yellowstone has always rumbled. The quakes are usually small but they typically have 5 a day. Are you certain of your information?”

“I am positive. Yellowstone observatory hasn’t recorded a quake since 2038.”

"I roomed with Ryan during our 4 years at West Point. I've rarely known him to be wrong. The gut thing of his is better than a crystal ball. I'm moving down here. I have heard all I need to hear."

"You're that confident?"

"Absolutely."

"Paul, what do you think?"

"I wasn't sure; I don't know Ryan as well as either of you. Lance, you always half kept an eye on Ryan's career. Was he a good, reliable soldier?"

"One of the best; that's why I had him bought back to help with the Chinese invasion. Let's say that I go along. What are you suggesting Rocky? Just sell out and move down here?"

"That's precisely what I'm planning on doing. The house is paid for and has appreciated significantly in value. I'm sure June will go along; we talked about it a little last night. We don't have any family in the area so there aren't any ties except the two of you. If we all do decide to move, I'd suggest that we bring about 8 of those T-109's and leave the rest for the militia."

"I buy into that Rocky," Paul added.

"That just leaves me. I could care but I don't want to find new golf partners. I wonder what the locals will do when they see 8 of those T-109's."

"We can tell them that they demiled war souvenirs. Ryan said that Jen didn't much care for that Sheriff."

"Did you notice that his home is totally electric? The equipment in the shelter is totally electric too. The only non-electric thing I saw was his 100kw generator. Ryan did mention that they generate enough electricity that they actually sell some to the local utility company. I'd be happy if we could just generate enough for our own needs. Let's play a round of golf and if the courses around here are up to snuff, I'm pretty sure that Nancy will go along."

"I know that Mary is willing. We discussed that last night. She liked the idea of a medical clinic right here on the ranch," Paul observed. "So it boils down to whether or not we like the golf courses? I find that to be humorous. I'm in Rocky. If Ryan is right about a dozen or so golf courses, I'd speculate that Lance is in, too."

"I'll say yes, subject to my backing out if the golf stinks."

"I've played the Mountain View Golf Course at Ft. Huachuca, it isn't half bad, Lance."

“Let’s play there today.”

“Good morning, decide where you want to play today?” Ryan asked getting Huevos Rancheros from the buffet.

“Mountain View, will there be any problem getting a green reservation?”

“For the fabulous four that saved the US from the Chinese? You have to be kidding. I’ll make a call and try to arrange a 10:00am tee time.”

“We’re set for 10:15. We’ll use Ray’s SUV, it needs some exercise anyway.”

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“What about the wives?”

“I think that Jen has a pretty full day for them. There are a lot of galleries and shopping.”

“Eat up and let’s hit the road. What’s your handicap Ryan?”

“Nothing like yours, I’m sure. 14.”

“You need to hit the links more often.”

“I’ve been extremely involved in getting everything set up here.”

“Ryan, Paul and I are reasonably certain that we’re going to accept your offer. Lance wants to check out the golf before he’s sold on the move.”

“OK, next question. What about those T-109’s?”

“We’ll tell your local yokel that they’re demiled. Not that it’s true, but do you think he’ll know the difference?”

“I don’t have a good feel for that, but if you detach the breeches and stuff a rag up the barrel, I’m sure he will buy it.”

“Ryan is Fort Huachuca the hardest course?”

“Actually my country club is as difficult as Mountain View, maybe even a little tougher.”

“Ok, Mountain View today and Turquoise Valley tomorrow?”

“Works for me.”

“We can get a fairly good luncheon at the O club at Fort Huachuca, too.”

“Finish up and let’s go.”

“Ten minutes no more. It isn’t that far to the Military Reservation.”

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“Rocky, you were right about the course. Ryan what did that Captain want?”

“The installation commander wants to join us for lunch, his treat.”

“What did you tell the Captain?”

“It never hurts to get in with an Installation Commander. I told him around 1300 at the O Club.”

“We’re running late.”

“I suspect he’ll wait. He probably showed up around 12:45 and is nursing a scotch.”

“You know this officer?”

“Met him the first time I came on post. Played one round of golf with him. Fifteen handicap.”

“If your course is as good or better than Mountain View, I’ll list the house when we get home.”

“What about moving those tanks of yours, General?”

“We’ll ship 8 down here. I’ll have someone from one of the forts take care of it.”

“Fine. What about housing?”

“I noticed that yours is totally electric. Does that go for the heat, too?”

“We use wood heat in all of the homes. I think we can put at least 30kw on your roofs. That will leave the choice up to you.”

“I can live with wood heat. Can we get a housekeeper/cook like the one you have?”

“Full time, possibly live-in? Yes, of course. Our housekeeper has started seeing one of our vaqueros, Carlos. I don’t know if it is serious yet, but if it is she’ll be moving in with him when they get married. You may have noticed that I provide housing for my em-

ployees. Gunny Roberts, Ramon and Maria and Carlos. I can speak to Maria about housekeeper/cooks.”

“Is she available?”

“Just had a baby, probably not. Ramon got the son he wanted. She actually had the baby early and Jen delivered him.”

“Is Jen licensed in Arizona?”

“The papers should come through any day.”

“Well let’s let the Installation Commander buy us that lunch.”

o

“I’m honored gentlemen. It isn’t often that 4 distinguished visitors are on this installation at one time.”

“Thank you General. After we retired, we ended up all living in the Jackson area. Nice golf course here. We’re going to check out some of the other courses in the area and if they’re satisfactory, consider moving to the area.”

“General Williams uses the commissary; he can show you around the facility.”

“What do you recommend for lunch?”

“They have a pretty mean open-faced steak sandwich. Anyone care for a drink?”

“It’s a little early, maybe a glass of iced tea?”

“Did you come in on a commercial flight?”

“Paul has a Cessna Citation X. Rocky was his copilot. We flew into Bisbee-Douglas International.”

“How’s it configured?”

“There is a forward left-hand closet and a large forward right-hand galley with a hot cup dispenser, espresso machine and microwave oven. There are four executive tables in the club-seating arrangements and a LH vanity cabinet, externally serviceable RH toilet and a large storage closet in the aft lavatory area,” Paul replied. “I bought it used from Cessna. It has about 3,600-hours on it.”

“I’m sure we could arrange to hanger the aircraft here.”

“Thank you. We’ll have to see. Ryan’s ranch is only a few miles from the airport we flew into.”

◦

By the time they’d played 3 different golf courses, Lance was ready to move. A house is a house; golf is a passion. Meanwhile Ryan had called the realtor and made an offer on the adjoining section of land. Late in the week, when the weather was open, the 3 couples returned to Jackson to put their homes on the market. In the ensuing discussion, homes on the ranch had been discussed and the consensus was that the home that Ryan and Jen lived in would fill the bill. Ryan hooked his friends up with the contractor before they left and each couple ordered a home that suited their individual tastes.

While they thought that Ryan’s shelter was a bit on the excessive side they opted to duplicate it. They had seen enough in the last forty years to convince them that one could never be too safe. Ryan agreed to oversee the initial stages of construction and to work with the contractor to integrate the shelter system. “Perhaps,” Ryan thought, “I’d better look into those golf carts after all.”

Ryan bought in a surveyor and laid out 3 one-acre lots for his friends’ new homes. While he had the surveyor there, they laid out a small area for what amounted to a trailer park. Using manufactured housing made the problem of providing homes for the employees of the ranch far easier. Carlos and their new housekeeper/cook had hit it off very well and were becoming an item. Jen talked to Maria and Salina, their housekeeper/cook and the two ladies knew several couples that might fill the bill. In some of the cases, the husbands were ranch hands.

“Ryan we’re going to either need to start selling horses or expand the barn. With the pregnant mares we have, we are running out of choices.”

“What would you like to do, Jen?”

“This is an extremely fine herd. The horses should bring above market prices. I don’t know how fast they’ll sell under the circumstances. How about you do some advertising and begin to sell off horses and we’ll make a modest expansion to the barn?”

◦

Ryan was getting spread a little thin. There were the three new homes being built to oversee, shopping for additional housing for the anticipated new employees and the issue of the horses. He called what one might describe as a staff meeting involving Ramon, Carlos and Gunny.

“We have the three new homes going in that I’m trying to oversee. Jen wants me to start marketing the Arabians because our herd is expanding faster than we have space in the

barn. Also, I'm trying to see about housing for several possible new employees. I'm open to suggestions."

"I'll take care of the housing for you Ryan," Gunny offered. "You outline what you have in mind and I'll do the shopping, at least."

"The caliber of animals you have is the finest I've ever seen Señor Williams. You won't be able to sell them as fast as you're producing foals," Ramon added. "You are going to need to expand your barn or build a second."

"How many additional stalls do you think we need Ramon?"

"Perhaps as many as 40. That would presume that you could sell some of your horses. Maria told me that your wife talked to her and Salina about more domestics. I know some of the men that are married to the women whose names were brought up. Three of those men have worked horses for a long time. Carlos and I have worked with all of them at one time or another. They are very good with animals."

"Ok, I'm spread too thin here. Gunny is already in charge of security so Ramon is now the ranch foreman. Ramon, determine what you think you need for staff and let me know. Gunny, I want you to work with Ramon and see that any additional housing needs are met. I'm not quite certain how to explain this, but think of your operations as miniature profit centers. I'll pay a bonus based on the profit each of your operations generates. Gunny your bonus will be based on how secure the ranch is. You do know that I bought the adjoining section of ground, don't you?"

"I didn't. You've been running around like a chicken missing its head. I assume you're going to use the additional section for pasture and will put in appropriate fencing. You haven't heard of any pending invasion or anything have you?"

"No. However, you might want to consider a natural disaster and the consequences that would entail. Make us secure, Gunny."

o

"Gunny, can we have a word?"

"What's on your mind Ramon?"

"Señor Williams seems very nervous. What's going on? Is there something that we should be concerned about?"

"I've known a few men like him over the years, Ramon. They have sort of have a 6th sense. His stepfather was like that, too. His name was Ray and he passed about 5 years back. Anyway, the long and short of it is that the boss's gut is telling him that something bad is going to happen. I know that Jennifer and he tried very hard to talk her



cousins into moving down here too. They had a survival type community called Benton Village about 30 miles northwest of Jackson. He asked and I pointed out that the 142,000-gallon propane tank they had there would be like a small nuclear weapon if it ever got hit by a pyroclastic flow from Yellowstone. It wasn't long after that that they came to Bisbee and started looking for property. Now he has his General buddies moving down here too. These other fellas aren't anyone's fool and if they're convinced, I think we should batten down the hatches, so to speak."

"I think that if I hired those three vaqueros that are married to the women who do domestic work we have enough hands to run the ranch quite efficiently. They are all good men. Two of them are veterans, one a Marine and one was in the Air Force. They would need 4 bedroom houses because they have several children. Is there a shelter for the employees of the ranch?"

"The shelter that the boss put in for his house will house 10 persons. I think the new shelters are the same size. So, even without a separate employee shelter, there should be enough room for 40 people. I'll ask Ryan about an employee shelter."

o

"Ryan, I talked to Ramon about housing for his new employees. He is thinking that he can do very nicely with 3 additional vaqueros. These are the husbands of the women that Maria and Salina talked to Jennifer about. I think that I should go ahead and put in 3 additional 4-bedroom doublewides. We need to think about a shelter for the employees. Now so far as the fence is concerned, I think I'll recommend cyclone fencing. I can set it up with cameras and alarms like those we had at Benton Village. And, while I'm at it, maybe this would be a good time to run the wires for those Claymores you have stored."

"Make it happen, Gunny. Include the original ranch as well. If Jen is getting close to finding some sort of cure for malaria, it means that she probably has microorganisms that need to be secure. I don't believe that she has anything in her higher-level containment areas of the lab, but why take a chance? If we have to do it over, it will only cost more in the long run. Did Ramon say anything else about those 3 men?"

"Two of them are veterans, one a Marine and one an Air Force puke."

"And a Marine isn't a jarhead?"

"Sorry. But inter-service rivalry is still alive in 2042."

"Set up a 1,000-meter range, Gunny. We need the practice and you are going to be in charge of getting everyone up to speed on the weapons we have stored."

“I wouldn’t mind having a couple of those old junked LAV-25’s the Marine Corps disposed of. I don’t suppose you could pull a few stings and get us some and the ammo for those M242 chain guns could you?”

“I’ll see what I can do.”

o

“Lance, this is Ryan. The contractor is coming along well on your new homes. They should be completed in about 45-days.”

“Good, Ryan. We all have offers on our homes and are just waiting for the buyers financing to come through. It’s very cold in the area this year. I’m really looking forward to moving. The Army picked up 8 of the T-109’s and is transporting them to you on the HETS. They should be there in a day or two.”

“Gunny had a request and I don’t know where to go to get him what he wants.”

“What does Gunny want now?”

“He asked me to get him 2 of the LAV-25’s that the Corps used to use. Plus he wanted ammo for those Bushmaster chain guns.”

“I know a Lt. General in the Marine Corps. I’ll give him a call and see what I can do for you.”

“If they’re complete except needing repairs, we can rebuild them.”

“The last I heard they were rebuilding them and selling them to other countries. Can you afford a couple if they’re available?”

“I’m not really sure, Lance. I’m putting in 3 more mobile homes for new vaqueros who are married to the women we found as your domestics. Plus there is the matter of 6 miles of cyclone fencing. On top of that, I either have to build a separate shelter for the employees or we’re going to need to make our shelter space available to them.”

“I’ll work something out on those LAV-25’s, don’t worry about it. Had a chance to play any more golf?”

## The Apprentice – Chapter 6 – Flurry of Activity

All cadets received Christmas, spring, and summer leave; along with the four-day Thanksgiving break. Christmas leave is normally two weeks in length following the completion of first semester final examinations. Spring leave is about 10 days, including the weekends. Summer leave is about 3 or 4 weeks depending on a cadet's military leadership training assignment. When academics begin first classmen or seniors get twice as many weekend leaves as second classmen or juniors. A plebe or freshman will have only a few weekend passes. Plebes also may leave West Point for extracurricular or cultural trips and athletic trips. There is also the traditional Plebe-Parent Weekend scheduled each fall.

Jen and Ryan had made it for the Plebe-Parent Weekend. Ray had changed considerably. He was more reserved for one thing. He told them he thought he was doing well in classes, but he still had to take finals. He planned to come to Bisbee for Christmas break. Ryan said that perhaps Paul and Rocky could pick him up in Paul's Citation. That didn't work out and Ray ended up on a commercial flight. He'd lost some of his cockiness and that was probably the first thing Gunny had noticed. Ray had been in excellent condition when he'd left for summer camp, but now, he had more muscle mass and was gaining a quiet maturity.

Ray was working very hard to pull straight A's at the Academy. In many ways, he was fortunate; Gunny Roberts and his Dad had warned him that as a plebe, he was in for a lot of harassment. It was an institutional practice, probably as old as the Academy itself. And try as he might, the upperclassmen always found something wrong. He did manage to avoid punishment tours, but that was all he was able to avoid. He had managed to finish his first term with all A's, a bit of an accomplishment. Considering whom he was, the MPAC was already keeping an eye on him. They were uniformly and pleasantly surprised.

o

"I've barely had time to eat Lance. I made Ramon my foreman and Gunny is handling the security and housing."

"Good. Learning to delegate, huh? If we have the four of us, Gunny and 5 vaqueros, I think we're going to be short on people to operate all of the equipment. The tanks and the LAV-25's each take a crew of 3. That would mean that we'd need 30 people, not 10. We can talk more about that when we get to Bisbee."

Lance got on the phone to his friend in the Corps. Three of the 3rd generation LAV-25s that were produced for export were available. Some trading of favors and equipment occurred. Six of the T-109's in Jackson were exchanged for 3 of the LAV-25 Gen III vehicles. The swap included six full ammunition loads for the 3 LAV-25's. The vehicles specs:

Driver, Vehicle Commander, Gunner, Eight Troops  
Combat Weight - 36,000 lb  
Length - 273 inches  
Height - over Hull 77 inches  
Width - 105 inches  
Armament Primary: M242 25mm chain gun with TIS  
Secondary: C6 7.62mm machine gun mounted coaxially to the main gun  
Supplementary: C9 5.56mm machine gun pintle mounted  
Ancillary Weapon: Two 76mm Smoke and Fragmentation Grenade Launchers  
Ammunition (Ready): 210 rounds 25mm  
Ammunition (Ready): 440 rounds 7.62mm  
Ammunition (Ready): 8 Smoke Grenades 76mm  
Ammunition (Stowed): 210 rounds 25mm  
Ammunition (Stowed): 1320 rounds 7.62mm  
Ammunition (Stowed): 3200 rounds 5.56mm  
Ammunition (Stowed): 8 Smoke Grenades 76mm

That would require a second ammo bunker just to hold the additional munitions. However, if Gunny placed all of the Claymores, they could possibly avoid building a second bunker. Ryan had all that he could manage just overseeing the building contractors and supervising his subordinates. Gunny contracted for the fencing and ordered it topped with razor wire. An electrical contractor was brought in to run the cabling and 5th generation combination day/night vision closed circuit TV cameras were installed. Ramon hired the three vaqueros, with Ryan's approval, and expanded the barn by 60 stalls, getting a package deal and actually saving substantially on the cost. A portion of the addition loft space in the barn was used to store an additional 20,000 bushels of grain and more hay.

o

The 8 T-109's immediately got the Sheriff's attention. He looked inside and saw the breeches missing from the cannons and didn't inspect further. While the Sheriff of Cochise County might have been an elected official, his Deputies were not. They were professional law enforcement officers. Gunny took the time, in his capacity as the head of security, to get to know several of the Deputies. It would seem that perhaps some of the Deputies shared Jen's concern over the current Sheriff. While the current Sheriff was a law enforcement officer with several years of experience, he was more of a politician than a LEO. Gunny made it a point to cultivate a relationship with the Chief Deputy.

If one were to go back and read the original story of Mountain Man, one would quickly realize that Ryan had a substantial arsenal. It included some of the M2HB machine guns, several Mk 19 40mm grenade machine guns and some 120mm mortars. These were the heavy weapons that neither Michael nor Bill wanted at Benton Village. The only difficulty lay in the fact that there were many more weapons than personnel to operate the weapons. The solution that Ryan and Gunny arrived at concerning a shelter for the staff was to erect one more shelter that would double as a Command Bunker. The

closed circuit TV monitors and the control panels for the Claymore mines occupied a small area in the shelter. It was large enough to provide accommodations for 30 people.

o

“Pretty impressive. You have those 8 tanks and 3 LAV-25s all lined up in a row. That should scare the crap out of any would be attacker.”

“The Sheriff was around and confirmed that the tanks were demiled. What did you do with the breech blocks?”

“They’re in that toolbox inside of each tank. We didn’t want to get them mixed up. We’ll reinstall them if the tanks have passed the Sheriff’s muster.”

“Actually, I believe that you could have left the breech blocks in and he wouldn’t have known the difference. Gunny installed the Claymores and that barely left room for the extra munitions for the LAV-25’s and the 125mm tank rounds.”

“Where did you put the extra munitions for the other tank weapons?”

“In the armory for the Command Bunker. Gunny has quite the setup there. He can monitor all 6 miles of fence line with the 5th generation closed circuit TV cameras. He has a series of panels set up to control those Claymores we brought down from Benton Village. In a pinch, one person can run the whole show. But we set it up so two people could run the consoles if we got attacked from all sides at once.”

“What all do you have for weapons?”

“It would be easier to tell you what we don’t have. Most of the things we have are old things, like the Ma Deuces, Mark 19s, etc. It was what we learned to use back in the days when we were cadets.”

“Ryan, I’ve never been impressed with all of this latest, greatest stuff the military came up with,” Rocky observed. “Hell they replaced the Ma Deuce with that M-312 machine gun and other than the links, it uses the same ammo as the Ma Deuce used. They just replaced the weight of the older systems with some fancy stuff to absorb the recoil, and quite possibly break.”

“I’m glad you feel that way, Rocky, because this is the same equipment they used against the Chinese at Benton Village.”

“If it worked then and has been taken care of, it will work now. I assume you have a supply of barrels for the .50 cal.”

“They’ve all been replaced and we have a large number of spares, yes.”

“What do we owe you for the lots?”

“Just what I paid for them, \$2,000 each. They’re surveyed one acre lots.”

“Good less lawn to mow.”

“Use desert landscaping and have a gardener take care of everything. I still have a lot of irons in the fire. Maybe you can get that General over at Ft. Huachuca to join you for a few rounds of golf.”

“What do you need to do that’s so important?”

“I need to help Ramon sell some of these horses. Even though we have room for more, that will only see us through one more breeding season. If I can sell 50 head, it will undo some of the damage to my bank account.”

“Well, we should have some horses, Ryan how about we each buy a pair?”

“Do you know what you’re getting into Rocky? These are very expensive horses.”

“How much? I’ll write you a check right now.”

“\$10,000 a head, but for you, I’ll throw in the tack.”

“\$20,000 gets me 2 horses and the saddles? Ok, does that include boarding or is that extra?”

“That’s extra and Ramon’s running the boarding operation. But you can work with him and have your pick of the herd. Except for our personal horses of course.”

“I notice that everyone is armed,” Paul said.

“Buy the horses Paul and if there are any weapons you need, I’ll include them as part of the purchase. The rule of thumb at Benton Village was that each family had one main battle rifle, one assault rifle, one short-barreled shotgun and one .22 rifle per family plus a handgun for every adult. We defined an adult as anyone over the age of 15. I think those are reasonable precautions and if any of you need any weapons, let me know. There is no reason for you to buy any.”

“I could use a MBR, Ryan.”

“What do you want, Paul an M14 or a FAL?”

“FAL?”

“Gunny, get Paul one of the FAL’s. Anyone else?”

“I only have one handgun, Ryan.”

“Ok, what do you want, Lance?”

“It’s for Nancy. Maybe a M9?”

“Does everyone have ALICE or MOLLE gear? If not, check with Gunny, he’ll give you whatever you need.” [Rocky-June; Paul-Mary; Lance-Nancy]

“What are you working on Ryan?”

“Gunny and I are working on a 1,000-meter range. It’s done except for the automatic targets.”

“That’s a very long range.”

“We have some Barrett M-82 rifles, 2 McMillan TAC-50s, 2 CheyTac Intervention .408s, M24 SWSs, M21 tactical rifles, M40’s and other weapons. I generally either use my M24 or one of the M1A Super Match rifles. Nobody expects anyone to shoot better than military standards: 300 meters on the M16, 500 meters with a MBR and 800-meters with a sniper rifle.”

“I think we’d better get our golfing out of the way, gentlemen,” Rocky laughed. “It sounds to me like we’re going to need some range time.”

“It includes your wives, gentlemen. Jen or Gunny can teach them if you don’t wish to.”

“Do you have a name for this new slave camp of yours?”

“We just call it the ranch. I was perfectly happy being a retired Captain, Lance. You made me the General and put me in charge of ⅓ of your force. That was a very steep learning curve, but I managed. Everything we do here is something that at one time or another all of you have done. We’re all the same rank here, civilians. And if we don’t need the training, it will suit me perfectly well. You had enough faith in my beliefs that you moved to Bisbee. Humor me if nothing else. Shooting is a very competitive hobby. It’s no worse than taking a club and beating up a little white ball.”

“Fore!”

“Shut up Gunny. Get the gentlemen the weapons and equipment they need.”

◦

Ray decided not to go home for Spring Leave. He wanted to see Washington since it had been rebuilt. On his third day in Washington, he met an attractive young woman.

She was a student at Johns Hopkins University, a second semester freshman in a pre-med program. Her name was Cindy, Cynthia Jane Collins to be exact. Cindy reminded Ray of his grandmother, Stacy. Cindy was very attractive and must have been impressed with the uniform that Ray proudly wore. They ended up having lunch together and visiting several of the same places. Cindy kidded Ray that he was following her and he produced a list of the places he was planning to visit. Cindy was 19 to Ray's 22.

He was the perfect gentleman and she the perfect lady. They ended spending several days touring the sights in the Washington area. They exchanged addresses and promised to write one another. Due to pressures at school, it was a few weeks before Ray had the chance. He thanked her for the wonderful time in Washington and inquired what plans she had for the summer. Cindy wrote back to tell him she had planned on attending a summer school session and gave him the dates. Ray noticed that the open dates coincided with his leave and wrote back to ask her if she might be interested in visiting Arizona. His parents had a small ranch in the Bisbee area. Without thinking, Ray also mentioned who his mother and father were.

Cindy had aspirations for her medical career and when she realized who Jennifer was, called her mother to discuss visiting Arizona with Ray. Her mother's first impression was that Ray wanted what every mother expects a young man to want with her daughter. However, when she learned that Ray was a plebe at West Point her attitude softened. When Cindy went on to explain who Ray's parents were, Cindy's mother reluctantly agreed to the trip.

o

"Dad, this is Ray, how is everyone at home?"

"We're fine Ray how did you make out the second semester?"

"It was difficult, but I pulled straight A's for two consecutive semesters. The reason I'm calling is about summer leave."

"Do you get 3 weeks or 4?"

"Three this year, Dad. I took my spring leave and visited Washington. While I was there I met a young woman. Her name is Cindy Collins. I know that I should have asked first, but, I invited her to come to Arizona during my three weeks leave and meet my family."

"Tell me a little more, Ray but hang on and I'll get your mother on the phone, too."

"Hi Ray."

"Hi Mom. Anyway, I was telling Dad I met a young woman in Washington during spring leave. Her name is Cindy Collins and I invited her to spend my summer leave in Arizona



with me to meet my family. She talked it over with her mother and her mother has agreed. Is it ok with the two of you?”

“What do you know of her? It sounds to me like the two of you have just met.”

“We have actually. She’s just completed her freshman year at Johns Hopkins in pre-med. She’s going to summer school but has a few weeks free before the summer school session.”

“I’ll talk to Paul and weather permitting we’ll pick you up at Ronald Reagan Airport.”

“Thanks, Dad. Is it ok with you too Mom?”

“Yes, I suppose so. I’d definite like to meet the woman who managed to get you to thinking about the opposite sex.”

“Ok, I’ll let her know. Thank you both. I call with confirmation of when we can be at the airport.”

“Take care, Ray.”

◦

“Paul, I need a favor.”

“Name it Ryan.”

“Ray is getting summer leave and bringing home his new girlfriend. I was wondering if you and Rocky could fly Jen and me to Ronald Reagan to pick them up.”

“Weather permitting, I’d be more than happy to. Rocky wants all of the time in the air he can get. We can get Gunny to drag Lance to the range for a day or so.”

“Of course, I’ll cover the fuel and such.”

“Of course. Just let me know a day in advance if possible so I can file a flight plan, etc.”

Paul pulled out his maps and laid out a preliminary course from Bisbee to Ronald Reagan. Once that was done, he went on the net to check the latest NOTAM’s. Then he filled out a flight plan leaving only the dates and times blank. He gave Rocky a call and Rocky said he’d be happy to fly second seat. Then, Paul called Ryan back and said all they needed was good weather. Paul called the airport and asked that his plane be checked over to make certain it was ready to fly. He indicated that they were making a round trip to Washington, DC.

◦

The trip to Washington was uneventful. They landed at Ronald Reagan and while Paul and Rocky had the plane refueled Ryan and Jen went looking for Ray and his girlfriend, Cindy. Jen spotted Ray first and pulled up short.

“Ryan, doesn’t she look a whole lot like your mother?”

“I’ll be damned, she does, doesn’t she. Well let’s get this over with.”

“Ray, you’re looking good.”

“Hi Dad, Mom. I’d like you to meet Cindy. Cindy Collins, meet my parents, Ryan and Jennifer Williams.”

“Aren’t you lovely,” Jennifer said. (Meow)

“Thank you so much. I’ve been looking forward to meeting you. You too, General.”

“Call me Ryan, please, Cindy.”

“I’ll try, but that goes against my upbringing, Mr. Williams.”

“Let’s get back to the Citation. Luggage?”

“Paul, Rocky, I think you know Ray. This young lady is Cindy Collins.”

“Buckle up; we have to leave quickly because of some incoming weather.”

“A problem?”

“Not if we leave now, no. There’s a summer storm in the Atlantic coming up from the south”

“Let her rip, we’re ready.”

The flight back was equally uneventful. Despite herself, Jennifer found herself warming to Cynthia. She was indeed a very attractive young lady and very smart. Jennifer considered it beginner’s luck for Ray. Then, she thought back and realized that beginner’s luck seemed to run in the family. Ryan had never dated any one before or after her. They landed at Bisbee-Douglas International without incident. Paul and Rocky stayed at the airport to do something with the plane and the four of them got into Ray’s SUV and headed back to the ranch. Stacy and Roy were on summer break and Cindy got to meet the entire family. It turned out that she loved to ride. Several of the horses belong to Ray and he quickly earmarked a gelding for Cindy. He mentioned to Ryan that that particular horse was no longer for sale.

“Nice looking young lady, Ray.”

“Thanks Gunny, I happen to agree. Doesn’t she remind you of my grandmother?”

“Now that you mention it, yes, she does. Is she in college too?”

“She is a sophomore at Johns Hopkins in pre-med.”

“I thought that all doctors were supposed to want a nurse for a wife.”

“Whoa, Gunny. She and I just met during spring leave. There are many years of college ahead for both of us.”

“Just checking. You seem to have changed a little.”

“Not so cocky anymore?”

“Maybe that’s it.”

“I haven’t lost any of my self-confidence, but there is a time and place for things like that. You folks have turned this place into Benton Village and more.”

“In some ways, Benton Village has better security than the ranch. However location is sometimes everything. Your father is quite concerned about Yellowstone.”

“What, that Supervolcano thing?”

“Well, I checked and something unusual is going on.”

“What?”

“They haven’t had a single earthquake tremor since 2038.”

“What does that mean?”

“I’m not a geologist but it has your father very worried.”

“I think maybe we’ll drive the SUV back to the east coast.”

“Do you think your Dad will go along with that?”

“It doesn’t matter, Gunny. I’m 22 and it is my vehicle. I just want the vehicle available on the east coast in case of trouble. I don’t have time with my summer schools and academics to worry about the vehicle or use it. On the other hand, it would be nice if it were there. Say would you mind teaching Cindy to shoot?”

“If she wants to learn, I’d be happy to. Why don’t you teach her? You the best shot on the ranch.”

“Please?”

“Ok.”

o

“Cindy, I’m planning on taking my SUV back to the east coast with me. Would you have anywhere you could garage it for me?”

“You could park it at my parents’ home, I suppose.”

“Great. I’ll leave you the keys so that if you need to use it, it will be available. Allow me to explain something about that vehicle. It has been specially configured and actually has a cruising range of nearly 6,000 miles. There is a winch on the front and a box in the back compartment. I’d like to take a moment and show you the contents of that box, if you don’t mind.”

“What’s in the box?”

“I guess you might call it a survival kit.”

“Guns? I’ve never handled a gun.”

“I talked to Gunny Roberts and asked him if he would teach you to shoot. I could teach you, but frankly I need to do a lot of practice myself. Besides, I thought that you might be more comfortable with a professional soldier teaching you about firearms.”

“I can’t see where firearms are compatible with the practice of medicine.”

“My mother is a doctor and third best shot of anyone on the whole ranch.”

“Who is the best?”

“I am.”

“Second best?”

“My father.”

“Shooting runs in the family?”

“I hadn’t thought about it. I suppose so, yes. Dad was on the Black Knights Shooting Team when he attended West Point. He holds a few records. I guess I grew up with a

rifle in my hands. I won't insist. It is up to you. If you'd rather go riding while I shoot, Ramon can help you with your horse."

## The Apprentice – Chapter 7 – Later Years

“I suppose that a gun would be safer if I know how to handle it than if I didn’t. I’m going to visit with your mother first, however.”

“You might also want to visit with my sister. Her box is set up slightly different from Roy’s and mine.”

“Ok. I’ll talk to you in a while.”

“Yes, I do shoot Cindy. It isn’t about wanting to hurt anyone. It’s more about protecting the people I care for. When I met Ryan, he was already into shooting. I won’t tell you that I took to it like a duck to water, but I did learn to shoot. Later, we used to have shooting contests at Benton Village and I actually became rather proficient. I do enjoy shooting. And back when the Chinese attempted to overrun Benton Village, Ryan’s mother was right alongside Ray shooting Chinese to protect her family.”

“Ray said to check with Stacy about the difference in the boxes in the SUV’s.”

“Oh, feminine hygiene products. That’s the only difference. Check in the supply room and get some of whatever you prefer and add them to the box in Ray’s SUV. Do you really like Ray?”

“I do, very much, yes.”

“Ray may become a physician, but he was a shooter first. He’ll never give up his love of shooting. I doubt that any woman who wants a future with Ray would not also love the shooting sport. What do you have to lose, Cindy? You won’t know if you like or dislike firearms until you tried.”

“Thank you, Dr. Williams, I’ll think about it. What area are you currently conducting research in?”

“Mosquito borne diseases. I’m currently working on malaria.”

“Any progress?”

“Perhaps. I have a wide range of testing to conduct before I’ll know for certain. Once I tested my vaccine on all four subspecies of Plasmodium responsible for malaria, I’ll have a much better idea.”

“If it works, what then?”

“I’ll turn it over to the CDC for them to confirm my results. If they do, we’ll begin producing a vaccine. If we can produce a vaccine to prevent or cure malaria, we’ll be just that much closer to eliminating the largest source of disease on the planet today.”

“You did some work on Ebola, didn’t you?”

“I was in Africa and saw something in a microscope that looked familiar. I compared it with my notes from the internship at the CDC and then took a photo and forwarded it to Atlanta. I was very fortunate to be able to participate in developing that vaccine.”

“I’ve heard it differently.”

“I don’t know what you’ve heard, but that’s exactly what happened.”

“Where is the supply room?”

“I’ll show you.”

◦

“Gunny, Ray said you might be willing to teach me to shoot the firearms he has in the box in his SUV.”

“Cindy isn’t it? I’d be happy to. What, if anything, do you know about firearms?”

“Only that they kill people.”

“They do that, yes. Killing was what they were intended to do. However, there is much more to it than that. If you want to learn, we’ll start in a classroom first and I’ll teach you about the firearms Ray has in his SUV.”

“I really like Ray and his mother told me that a woman who wouldn’t learn to shoot and enjoy shooting firearms didn’t have a chance of getting to know him very well. I don’t know, but I’m willing to give it a try. This is a very nice family.”

“It is. Ok, let’s start with the Kimber M1911 .45ACP pistol...”

◦

“Hi.”

“Hi, Cindy. Come to watch me shoot?”

“No. I came to learn to shoot the Kimber .45 ACP and the AR-15. I added some things to your box in the back of your SUV, too.”

“Ok, great. Put on your muffs and I’ll complete this course of fire.”

“What range are you shooting at?”

“1,000-meters.”

“That’s a strange looking rifle.”

“This is a Barrett M82A1M. Here is what it shoots.”

“That looks like a machine gun bullet.”

“It is. It has a range of 2,000-meters, but that’s a little far for sniping in most instances.”

Ray resumed firing and was maintaining about ½ MOA at 1,000-meters. Cindy looked in the spotting scope and could barely see the target. She shook her head and went to join Gunny who was just coming on the range.

“When Ray is finished, we’ll move up much closer and begin with the pistol. When you’re competent with it, we’ll switch to the AR-15 at 100-meters.”

“Ray is shooting at 1,000-meters. That’s a very long way, isn’t it?”

“Very. We only shoot at 1,000-meters with the large caliber rifles.”

“Is Ray very good?”

“Ray is even better than his father and his father was a shooting champion at West Point many years ago. They had something they call the Sandhurst Competition, which involves reassembling a dismantled weapon. That year his weapon was the M60 machine gun and he won. Ray can dismantle and reassemble every weapon we have in Ryan’s extensive collection.

o

“May I watch?”

“Maybe later when I find the target, Ray. Why don’t you go riding?”

Great suggestion. What Ray did instead was to add a second Kimber and a M16A3 rifle to his box and double the quantity of ammo and magazines. He also added a second set of ALICE gear, which included the fanny pack BOB. He noticed the discreetly wrapped package in the box. He also added his own discreetly wrapped package, just in case, not planning on needing it but still...

Then, he saddled his horse and went riding. In another couple of days they’d need to head back to Washington for them both to make classes. He planned on having the SUV checked out tomorrow at the dealer’s and make certain that it didn’t need anything. He added a pair of mounted tires in the back of the SUV while he was at it.



Ray's favorite horse was also a gelding. It was jet-black, the same as the horse he had selected for Cindy. Cindy rode very well and obviously had been riding for a long time. It appeared to him that he might just possibly have picked a winner out of the gate, but only time would tell. When Cindy finished on the range she joined Ray and they rode until shortly before dinner. The subject of shooting didn't get brought up. After dinner Cindy got interested in a film and Ray excused himself to visit with Gunny.

"Gunny, how did she do?"

"About what one might expect from a person who had never handled firearms. I think she has the making of an excellent shooter. She can field strip and assemble both weapons with a reasonable degree of proficiency. She was fair to good with the Kimber and very good with the AR-15, considering it's the first time she ever fired one."

"I'm taking the SUV to town tomorrow to have the dealer check it over and that will give you one more day to teach Cindy whatever she needs to learn. I added a second set of ALICE gear, a M16A3 and another Kimber to the box in my SUV."

"If it were me, I'd lose the M16 and put in a second AR-15. The problem is the DC gun laws. Ray, one rarely needs the automatic fire capacity of the M16 in a non-combat situation. Perhaps you be better safe than sorry."

"OK. I'll do that now."

"Good man. I've noticed that you listen better too."

"That doesn't mean I've changed how I think. But I'm young and you're about 100-years old, so I listen to my elders."

"Still a smartass, though."

"I will always probably be a smartass around you, Gunny."

"Keep you powder dry and you pants zipped my young Romeo."

Ray snapped into a brace and said, "Sir, Yes Sir, Gunnery Sergeant Roberts, Sir," and then laughed.

o

Ray got the vehicle serviced; it didn't need a thing and filled the tanks. He dug out 2 rolls each of silver dimes, quarters and half dollars and 10 Krugerrands and added half of each to the BOB's in the fanny packs. The following morning, after a good breakfast, Cindy and he headed back to Washington DC. When they arrived, he met Cindy's parents and left the SUV parked at the parents' home. He made certain that Cindy know

about most of his additions to the box. For obvious reason he didn't discuss either his or her discreetly wrapped packages.

Ray had decided to follow the same career path though the Academy, with the exception of his major, that his father had followed. With someone important in his life, he applied himself with an increased diligence. He continued to maintain a 4.0GPA, as did Cindy, perhaps, or perhaps not, for the same reason. They had some opportunities to spend time together, but school always came first. He accepted an invitation to spend Thanksgiving with her family during his second year at the Academy. Cindy's father Joseph had some kind of a super-secret job with the government that he wasn't free to talk about. Cindy's mother Ramona was, I suppose, your typical homemaker. A very well educated homemaker as it turned out. She had attend Brown as had Ray's mother. She was 3 years behind Jennifer and although she knew the name she'd never had the opportunity to meet her.

Because Ray chose to follow his father's career path through the Academy, there is little point to repeating the story. Any variation from Ryan's career will be noted. Ray, like Ryan spent his second summer at "Camp Buckner" an opportunity to further his military, physical, and leadership skills. Buckner was advanced training over and beyond his first "beast" summer. Actually, Buckner was a "little" more enjoyable. One week of Buckner included going to Fort Knox for a week that was primarily armor. This week ended with a "million dollar minute" where a huge demonstration of artillery and tank weaponry was demonstrated. Ray was tremendously impressed, as had been Ryan.

During the fall of Ray's second year at the Academy, Yellowstone finally resumed its rumbling. The earthquakes were generally low intensity, almost all below M2.0. However what they lacked in strength, they more than offset by volume, with the occurrences constituted a continuous low-level swarm at times. The changes were enough that the USGS added an extra geologist and a couple of volcanologists, but not enough to generate any level of alarm.

Ray brought Cindy along on his Christmas leave, this year. If gave them both a chance to shoot and ride. Cindy even spent 3 days in the lab assisting Jennifer whose research was nearing completion. When it was time for them to return, Ray had the SUV serviced and added a second pair of tires, giving him 4 full-sized spares. Then as quickly as they had shown up, they were off and running, hurrying to get back in Washington. Sorry, no accident to report, Ray was a careful driver.

o

"Gunny what is our status?"

"We are fully ready for anything that might happen, Ryan. How is everyone doing on their food stocks?"

"We all have 5 years as does the employee shelter. Do you think we should lay in an extra supply of fire wood?"

"What is the average consumption?"

"40 cords per year give or take."

"And your present inventory?"

"80 cords."

"You do what you want boss, but if you left it to me, I think I'd crank that up to at least 60 cords per building. What do you folks have put up for seeds and fertilizer?"

"Just the standard things we've always kept. Why, would you do something different?"

"Can't say, really, but look at it this way. Let's say that the Sagan fella was right about the growing conditions after a nuclear war or a Supervolcano erupting. I think they might have about the same effect, but I could be wrong. Anyway, if I understand what he proposed, the weather here in this area would be more like Montana or southern Canada. Maybe you ought to adjust your seeds accordingly."

"Good idea. That is fairly easy, anything else?"

"What is the runtime on those generators you folks put in? You know, how many years?"

"Surely not more than two years. We didn't increase our fuel supplies when we added the 4 additional generators. Oh, 5 years' worth of food and one year of lights. Ok, that's almost as easy."

"You're going to want underground storage. Do you have a place in mind where we can add enough of the 40,000-gallons tanks to insure a 5-year supply of fuel?"

"I do, yes. Anything else?"

"Is the communications gear all checked out?"

"I don't suppose it would hurt to have them serviced. Everything seems to be working ok. Let's see 10 40k tanks will give us an additional 400k gallons plus the 120k gallons we already have, 520,000 gallons. Maybe I'll jump that by another 40,000-gallons just to be safe. So 11 additional tanks; and have everything serviced. Are we forgetting anything?"

"Ammo supply?"

“A couple of wars worth, at least. And we have spare parts for all of the vehicles.”

“I can’t think of anything else, Ryan. Hey wait a minute, what about Paul’s plane. Does he have a captive fuel supply?”

“I don’t think so. I’ll talk to him about it.”

“Ok, once those things are out of the way, all we’ll need is our disaster. It’s going to be mighty boring around here if nothing happens. On the other hand if something does happen it’s going to be more exciting than that Chinese invasion.”

o

Ray’s third summer was split between Fort Irwin in California, the National Training Center with "OpFor" opposition training forces working on maneuvers and battle planning and the other half at airborne school at Ft. Benning Georgia. Again, he was still following his father’s career path, except for his major in Life Sciences. Cindy came to Bisbee and worked for Jen in her lab. Jen was getting very close to completing her testing and all of the statistical data had her overwhelmed.

++++

“Paul, Gunny and I were going over any last minute updates to our preparations. He asked if you have a captive fuel supply for your Citation and I told him that I thought not.”

“I don’t have a fuel supply. In fact, I’ve just rented hanger space. Maybe I should put in my own hanger and store some JP-8 together with some parts. That fellow that works for Ramon was in the Air Force. Do you know what he did in the Air Force?”

“Never thought to ask, but I can check.”

“Ramon, what did Roberto do in the Air Force?”

“Avionics, I think, I’ll ask. Hey Bob, what was your specialty in the Air Force?”

“Avionics on the VC-20. Why?”

“I asked. Paul has that Citation X and he wanted to know what you did in the Air Force.”

“Avionics is avionics. I would have stayed in the field but I wanted to be in Bisbee more than I wanted a career working on Aircraft. There are 3 or 4 of us in the area that made the same decision. We were going to start a business together at Bisbee-Douglas International, but could never raise the capital.”

“What type of business?”

“Servicing corporate jets.”

“What are the others doing? Are they still in the area?”

“Uh, huh. They’re all working. A couple of them work at the airport.”

“Do you know how to get in touch with them?”

“I see them about every weekend.”

“Could you give me a list of the names and addresses?”

“I guess so. Do you have something in mind?”

“Just a vague thought. If anything comes of it, we talk some more.”

o

“Paul, I checked. He was in the avionics field. His name is Roberto, but he goes by Bob. He told me that he worked on VC-20’s. He also mentioned that several friends of his had opted to stay in the area. They had intended at one time to open a corporate jet service business but had problems raising capital.”

“They should have done it, Ryan. The airport has the services, but there’s more business than service companies.”

“Still thinking about a hanger?”

“I’ve looked into it. There is space available, but it would be expensive to put in a private hanger.”

“What if you provided the capital and started a corporate jet service business?”

“Would that be a good idea?”

“You tell me. You said there was more business than service providers.”

“It’s food for thought. I don’t suppose you got a list of names did you?”

“Here you go.”

o

Paul stopped wondering why Ryan had such a successful business career. First, he ran the info by Rocky and suggested that a corporate jet service business could give them

both an extra source of income. Rocky suggest that Paul talk to the people involved and he'd go to the airport and look for available space. What started out sounding like a relatively simple idea to implement was not without its difficulties. To operate a general corporate jet service business required more than a hanger and a staff. It included training, certifications, a nominal parts inventory, tools, etc.; plus time and money.

"I wonder if Bill Gates got started this way." Rocky asked.

"He got in on the ground floor. We're the Johnny-come-lately firm. We have a meeting at the bank this afternoon. Even with the \$250,000 that you and I have put up, we're going to need more capital and a line of credit, Rocky"

"We have a staff, at least."

"When they finish all of their cross-training, we will, yes."

"What are we starting with?"

"Gulfstream and Cessna. That accounts for a lion's share of the available business. The other firms can have the other planes until we're a little better established."

"Are we going to be strictly service or were you thinking of adding charter?"

"I don't want to take a bigger bite than I can chew, partner, service for now. Do you want to take over that fuel business? That's more in line with a service business and after all, it was the issue of having available fuel that led to this nightmare in the first place."

"What do I know about jet fuel?"

"What do you need to know? We'd be acquiring a going business and there is already a staff in place. They have several years on their lease so we wouldn't be moving anything, just overseeing an additional operation."

"I suppose we'd better talk to the banker about that too."

o

Gunny had been teaching Cindy more than marksmanship. Maybe it's called hand-to-hand combat or perhaps something else. A million years ago, everyone just called it judo. Perhaps the best description would be ballet. You know Tchaikovsky, right? Sleeping Beauty Waltz, Swan Lake and the Nutcracker Suite? Gunny was teaching Cindy the latter and she was becoming very accomplished. The thing one has to realize is that on the receiving end, the Nutcracker wasn't so sweet.

Jen got a call from Cindy. She was very upset. It seems that her study partner on a joint assignment had made advances and she landed the sap in the hospital. Cindy was concerned what Ray might think and called Jen after talking to her mother.

“Call him and tell him Cindy. He’ll be a ‘firstie’ next year and reaching him shouldn’t be a problem. Just tell him you owe Gunny a smack on the lips for teaching you the hand-to-hand combat. You didn’t hurt yourself, did you?”

“My knee is a little sore but it will be ok, Jen. I don’t know about that fella that got fresh, however. He may have to drop out of school.”

“Why? He can’t be hurt that badly can he?”

“I don’t know, maybe to sing in the Vienna Boys Choir?”

“You must have given him quite a shot.”

“Gunny Roberts said half measures avail you nothing.”

“I’ll tell him you called to thank him. Call Ray and fill him in. I’m sure he will feel better knowing that you can take care of yourself.”

o

A few days later, Ray called Ryan and discussed the subject of his proposing to Cynthia. He also announced that it appeared that he might get to go to medical school. The MPAC had called him in for an interview and while they hadn’t disclosed anything, Ray was comfortable with how the interview had gone.

“Have the two of you talked about this?”

“Yes, Dad. We were thinking of a wedding in the Chapel just like Mom and you had, after Graduation.”

“Do you have enough money for a ring? Diamonds have gotten quite expensive, you know.”

“I guess it would depend on what they cost. I have some money.”

“I sold a couple of your horses; do you want me to put that money in your account?”

“Might help. Only two?”

## The Apprentice – Chapter 8 – Future Plans

“\$25,000. They were two of your best, a mare and a stallion.”

“In that case, I’ll be fine. Heck Dad, I’ll have more than enough. I wasn’t going to get Cynthia quite the same thing you got Mom. Perhaps something a little smaller, around a carat.”

“You’ve been looking at stones?”

“Getting ideas. This is a pretty big step and if I’m approved for Medical School, I’m looking at that, internship and residency. I’ll have 20 years in before you know it.”

“How is Cindy doing in school?”

“Better than I am. I got a B in History so I lost my straight A average.”

“Did you get on the Black Knights Shooting Team?”

“Yes Sir. Pretty stiff competition this year, too. I don’t know if I was lucky or just what. I suppose I should have practiced more.”

“Did Cindy call you? She called your mother a while back and was very upset.”

“Yes, she told me about it. I guess I owe Gunny a bottle of his favorite. I don’t think anyone will bother her any more. What the deal with Yellowstone? I haven’t heard anything more about it.”

“Oh, it will swarm and then calm down and then swarm again. They issued a level one alert a while back and everyone got excited for a while but nothing came of it.”

“Is it going to blow up or were you perhaps anxious over nothing?”

“I’m more convinced than ever. You kids should be okay in Washington. If you go to Med School, have you thought about which one?”

“Johns Hopkins, Dad.”

“I’ll tell your mother about everything.”

“Thank you for everything Dad. Best decision I ever made, going to the Academy.”

◦

“I’ve got to run to the bank and put Ray’s horse money into his account, Jen. I think he’s planning on proposing to Cindy. I’d better buy Gunny a bottle while I’m at it. Ray didn’t



ask, but he did say he owed Gunny one. If Ray gets into Medical School, he's looking at Johns Hopkins."

"Our son, the Doctor. There is nothing wrong with his picker either. I was thinking about asking Cindy to be my lab assistant this coming summer. I'm getting close enough to finishing everything up that I could really use her help."

"You're that close?"

"One more series of tests. 3 of the 4 sub species have succumbed to my vaccine. I'm going ahead and applying for a patent. What's the bottle for?"

"The ballet lessons Gunny gave Cindy."

"Very funny; I didn't think that her putting that other student in his place would bother Ray."

"In his place? He was in the hospital for several days."

"Buy Gunny 2 bottles, he earned them."

"I might just do that. Did you hear about Paul and Rocky?"

"What are the dynamic duo up to these days?"

"The bank approved their additional financing and they're taking on the fuel business too."

"I think maybe they owe Gunny a bottle too. Don't get them all for him at once; we don't need to turn him into a drunk."

"He has a handle on his drinking. He was concerned and looked into whether or not he had a problem. He didn't but at least he was smart enough to consider the possibility."

"I'm very happy that he doesn't have a problem. We don't need someone in charge of security who might have a snootful when TSHTF."

"Then you agree with my assessment that there is a possible problem with Yellowstone?"

"I could have researched southern mosquitos in Benton Village, just as well as I am here. About the only difference the new lab has made is my having the latest equipment to use. This electron microscope is far better than the old one I had."

"I really hope you do find that cure. Not only for the sake of the people whose lives will be saved, but also because it will allow you to recoup the investment you made in the lab. Hey, when did you get your Arizona license?"

"Months ago. I hung it up and forgot about it."

"Does that mean you're seeing patients now?"

"Just the people on the ranch for the moment. You can let everyone know, it slipped my mind."

o

"Gunny, got a moment?"

"Sure, what's up?"

"I have to run to the bank and I want you to come along to help me with something else."

"Do I need to bring anything?"

"Just yourself. Ray is going to propose to Cindy. I'm putting his horse money in his account so he has enough for a diamond."

"Hot damn. He got himself a keeper, that's for sure."

"I understand that you taught Cindy some self-defense techniques."

"Big City, Washington. She was getting good enough with the weapons that we had time and I showed her a few things."

"Good student?"

"Very good, why?"

"It seems that not all that long back she had an opportunity to practice the ballet with another student who got more than a little fresh."

"She had the knee technique mastered, boss."

"She must have, the guy ended up in the hospital for several days."

"I told her that if she actually had to use what I taught her to not go half way. I guess she understood, huh?"

"I'll say. Anyway, I'm paying a debt for Ray and for Cindy. Pick out two of your favorites."

"Aw, Ryan, I don't drink that much."

"I know. But, a debt is a debt and Jen says that you earned two."

"Well, I have developed a taste for Remy-Martin XO. Are you sure?"

"Do they have it here?"

"Yes Sir."

"Let us have two bottle of Remy-Martin XO."

"Geez, boss, thanks. This will last me a long time."

"By the Way, Ray got on the Black Knights Shooting Team, or did you know?"

"I didn't know, but I'm not surprised. He's the best natural shot with a rifle I've ever seen. He's better than you and you're one of the best."

"Make that 3 bottles, I'd better have one for the house." (\$150/750ml)

"God, boss, he'll probably close up for the rest of the day," Gunny chuckled.

"Let's get to the bank and back home. By the way, I mentioned that fuel thing to Paul and as you know Rocky and he ended up starting a business based on your suggestion. I'll let them know what you like."

"What are they doing now?"

"Roberto was an avionics specialist in the Air Force. He and several friends had intended to start a corporate jet service business but didn't have the capital. Paul and Rocky started up the business and made them part owners. They also took over the fuel concession at the airport and Rocky is now Mr. Jet Fuel and Paul Mr. Jet Mechanic."

"I like those two guys. Lance isn't bad either, but he'd sure rather play golf than worry about his shooting."

"Is he ok as far as his weapons?"

"He has qualified with the AR, MBR and sidearm. He'll never enter any shooting contests. Nancy is a far better shot than he."

"Is everyone on the ranch up to speed on their shooting?"

“Yes. I issued weapons and equipment where needed. Maybe if we started a shooting club like we had up at Benton Village, it might make a difference. But, everyone is qualified, including Lance. Oh did you hear? The Chief Deputy beat the Sheriff out in the election. We’re going to have a new Sheriff, a real one this time.”

“What is with all of the Deputy cars that are around here from time-to-time?”

“I let them use our range for their SWAT practice. They don’t have a range as long as ours.”

“Was that a woman I saw coming out of your house the other day?”

“I have a roommate, boss.”

“Really? Getting married?”

“What the hell for? She’s been married before and raised her family. She’s a widow and she doesn’t want to get married. I think maybe her children object, I don’t know. Anyway, now you know.”

“What’s her name, Gunny?”

“Sabrina Wilson. Hispanic. That’s one hot mama, let me tell you.”

“Does she like Remy-Martin too?”

“El Tesoro, a handmade brand by Tapatio. Tequila, boss. Maybe \$45 a bottle.”

“Do I pay you enough?”

“Oh hell yes. She buys her own. Her late husband left her very well off. See, I think that’s what her kids have against me. They think I’m after her money.”

“Are you?”

“Hell no. Did you really get a good look? They say it is all in the packaging. If they give college degrees in packing, she has a PhD.”

“Gunny, you’re a dirty old man.”

“God, I hope so.”

o

Ray proposed to Cynthia over Thanksgiving. She accepted. Her engagement ring was a 1.4-carat perfect diamond in a solitaire setting. Just as a point of reference, it was not an inexpensive stone. They came to Bisbee over Christmas. Gunny kissed Ray and shook Cindy's hand. Not! Jennifer offered Cynthia an opportunity to work as her lab assistant during the coming summer. Ray had been approved by the MPAC to attend medical school and he had selected Johns Hopkins. He would need to attend summer school at Johns Hopkins to tidy up loose ends, whatever that means. Jennifer was quite relieved that she wouldn't have to watch Ray jump out of a perfectly good airplane. Other family news included Stacy being accepted in Graduate School and Roy being accepted into DVM School at ISU. Over Christmas break, Yellowstone issued a stage two alert. It was rescinded in January.

How many young men do you know that have 2 4-star and 2 2-star Generals, in full uniform, attend their wedding in the Chapel at West Point? It was positively intimidating for Ray's fellow Second Lieutenants. The upside of the event was that the young Lieutenants got to meet the Legends. Then again, Ray had become something of a Legend in his own right. He broke nearly every record his father had set on the Black Knights Shooting Team when Ryan had attended West Point, including winning the Sandhurst Competition as a member of the Team. The weapon this year was the M240. It wasn't a fair competition because Ray could assemble the M240 blindfolded since his 14th birthday.

In his 4 years at the USMA, Ray had gotten 2 B's (History) and the remainder of his grades was A's. Cynthia had managed to get through Johns Hopkins with a 4.0gpa. The couple was going to honeymoon in Cabo San Lucas for a week courtesy of Jen and Ryan. After, Ray was off to Washington for his summer session and Cynthia was going to assist Jen in the lab with the 4th and final subspecies, *Plasmodium Ovale*. For those interested the 4 subspecies are: *vivax*, *malariae*, *falciparum* and *ovale*. They're simply bugs to me.

Four species of *Plasmodium* infect humans and cause malaria. All species are vector borne diseases, being spread by anopheline mosquitoes, and the disease is distributed throughout much of the world. In the human host the parasite is found primarily inside of the red blood cells (RBC). The parasite reproduces asexually inside of the RBC, and following this, the RBC breaks open releasing many new parasites (merozoites). These parasites then infect more RBC's, and this ultimately leads to the destruction of massive numbers of RBC's. The characteristic "chill and fever" (paroxysm) associated with malaria occurs when the parasites are released from the RBC's, and since the release of parasites is periodic, the paroxysms are periodic. For examples, the paroxysms associated with a tertian malaria (e.g., *Plasmodium vivax*) occur about every 48 hours, and those associated with a quarten malaria (e.g., *Plasmodium malariae*) occur about every 72 hours.

Jennifer's cure lay in preventing the parasites from reproducing. Thus, if a person became infected, the parasites simply died without reproducing and didn't cause any of the symptoms of malaria, e.g., the paroxysm. Simple, yet elegant; permanency was an

entirely different question that the CDC would have to answer. It appeared that ovale differed from the other subspecies with respect to the macrogametocytes, apparently absent in the ovale subspecies. Ask a doctor for more information, or read about it.

◦

Quinine sulfate inhibits or destroys the parasites in blood that cause malaria. Quinine sulfate is also used to treat malaria.

To treat malaria, quinine sulfate can be taken alone for three days but is more commonly used in one of three different combinations:

- Quinine sulfate plus doxycycline or tetracycline is taken for 7 days.
- Quinine sulfate plus pyrimethamine-sulfadoxine is taken as a single dose of three tablets.
- Quinine sulfate plus clindamycin is taken for 3 days.

Quinine sulfate is usually taken as an oral tablet.

Quinine sulfate plus another medication is the medication of choice for chloroquine-resistant malaria (where chloroquine is no longer effective against the malaria parasite). Quinine sulfate has been used for centuries for the treatment of malaria and is effective against all species of Plasmodium.

Side effects of quinine sulfate include:

- Nausea.
- Blurred vision.
- Headache.
- Ringing in the ears.

Quinine sulfate given through a needle directly into a vein (intravenously, or IV) is not available in the United States, but intravenous quinidine gluconate is an equally effective substitute.

◦

Obviously, Jennifer's objective was to prevent infection/reinfection, not merely to kill the parasite. If one merely wanted to kill the parasite, one could use any number of compounds. However, malaria at the turn of the 21st Century killed 2 million people per year and infected as many as 500 million persons. One may adjust the numbers to reflect the current population of the planet Earth, but it was still a major killer.

Ray got them a furnished apartment not far from the University. He enrolled in his classes and Cindy helped Jennifer wrap up her statistical data concerning the ovale subspecies and prepare the presentation for the CDC. At the end of the summer, Jen left

for Atlanta and Cindy returned to Washington. If I knew what Jen's cure involved, I'd tell you now and we could avoid all of the malaria related deaths that occurred between 2005 and 2045. Flight- ER-Doc could patent it and maybe buy me a house in Sedona.

o

Rumble, rumble,  $M_w$  6.5,  $M_w$  6.7,  $M_w$  7.0... Yellowstone was coming alive. Another stage two alert was issued. There are 3 alert levels:

Notice of Volcanic Unrest Alert Level ONE – This alert level is declared by USGS when significant anomalous conditions are recognized that could be indicative of an eventual hazardous volcanic event. The most likely such anomalous condition would be sustained, elevated seismicity. A “notice of volcanic unrest” expresses concern about the potential for hazardous volcanic activity but does not imply imminent hazard. Among the possible outcomes are: (1) anomalous condition is determined not symptomatic of an eventual hazardous volcanic event, leading to cancellation of “notice of volcanic unrest;” (2) symptomatic activity wanes, leading to cancellation of the “notice of volcanic unrest;” (3) conditions evolve so as to indicate progress toward hazardous volcanic activity, leading to issuance of a “volcano advisory” or “volcano alert.”

Volcano Advisory Alert Level TWO – This alert level is declared by USGS when monitoring and evaluation indicate that processes are underway that have significant likelihood of culminating in hazardous volcanic activity but when the evidence does not indicate that a life- or property-threatening event is imminent. This alert level is used to emphasize heightened concern about potential hazard. Among the possible outcomes are: (1) precursory activity wanes, leading either to cancellation of the “volcano advisory” or to a downgrade of alert level to “notice of volcanic unrest;” (2) conditions evolve so as to indicate that a life-threatening volcanic or hydrologic event is imminent or underway, leading to issuance of a “volcano alert.” “Volcano advisory” statements, supplemented as appropriate by “updated volcano advisory” statements will clarify as fully as possible USGS understanding of the hazard implications.

Volcano Alert Level THREE – This alert level is declared by USGS when monitoring and evaluation indicate that precursory events have escalated to the point where a volcanic event with attendant volcanologic or hydrologic hazards threatening to life and property appears imminent or is underway. Depending upon further developments, a “volcano alert” will be maintained, updated, downgraded to a “volcano advisory,” or canceled. A “volcano alert” statement will indicate, in as much detail as possible, the time window, place, and expected impact of an anticipated hazardous event. “Updated volcano alert” statements will amplify hazard information as dictated by evolving conditions.

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“Another level two alert? That’s the second one this year. Perhaps you were right, Ryan.”

“Hard to say, Gunny. Michael called. They’re sufficiently concerned that they’re evacuating Benton Village. I explained to him that his greatest danger lay in the 142,000-gallon of propane they have. He advised that they had constructed a new underground propane tank and transferred the propane to the new tank. That eliminated the explosive hazard, but the people there are frightened and unsure that their shelters are adequate if they did have a pyroclastic flow.”

“Even if they were adequate, what would they come out of their shelters to? You’ve seen photos of cities hit by pyroclastic flows, haven’t you? Most of them have never been rebuilt. What was the name of that place on that island?”

“Plymouth, the former capital city and major port of Montserrat in the West Indies?”

“That’s the one. About 50 years ago, wasn’t it?”

“Yes, 1997, Gunny. Wiped out the entire city. Fortunately, Plymouth had been evacuated. They had more problems in 2004.”

“Are Ray and Cindy ok?”

“They should be in Washington. I’m more concerned about Stacy and Roy.”

“Did you contact them and advise them to bug out?”

“They will leave the moment that Yellowstone Volcanic Observatory issues a stage three alert. They have those monitors so they won’t have to wait for the news to issue the warning. Stacy is over 500 miles from Yellowstone and Roy is over 900 miles away. I told Roy to head for Texas and come through El Paso. Stacy will take I-25 to Las Cruces and pick up I-10 there. They both filled up and are ready to run at a moment’s notice.”

“Jennifer is in Atlanta, when will she be returning?”

“That’s a good question, Gunny. She had her cell phone off. I left a message for her to call at the CDC.”

“I wish your kids would have left now.”

“They are adults and they know what is at stake.”

“Yes Sir. If you will excuse me, I have some just in case calls to make.”

“Go ahead, Gunny, I have to check on the horses.”

“General? Gunny. How the fuel business these days? No I didn’t call to chat. Jennifer is in Atlanta at the CDC and has her cell phone turned off. Do you know an Air Force



General with a SR-71 or an Admiral with maybe an F/A-18F? How's about you call in a favor and have the Navy pick up Jennifer and fly her back here? I don't really care what the General thinks, sir. I can tell that he's worried sick. You will? Thank you sir."

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Do they have anything called a Gunny's network? Does it still work after you've been out of the service for 25 years? I'll bet there is a General's network and Generals are Admirals with a different uniform. I guess when one thinks about it, Marines all work for Admirals anyway. The United States Marine Corps may have a Commandant, but his branch is still a part of the United States Navy. It is so much more efficient to call a 4 star who might know another 4 star who might just happen to have an unused F/A-18F sitting around and maybe a pilot who needs a few hours at > mach 1.8. Now if one were to take an F/A-18F and hang on 3 of those 1,818 liter external fuel tanks and no armaments, one might realize the ferry range of the aircraft, > 1,800NM. Maybe one wouldn't go as fast as > mach 1.8, but one might be able to get from Atlanta to Bisbee (1297 nautical miles) without stopping to refuel. I'll just bet you that that 4 star in Arizona might be able to refuel that F/A-18 with JP-8 and charge the whole damned thing to advertising or something. What do you think? You make me a retired 4 star and watch my dust! At least the wife will be safe and can visit me in Leavenworth.

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"What gives? I was in a meeting with the CDC and a Marine Gunnery Sergeant in full dress uniform comes in and drags me out of my meeting, puts me on a helicopter and then I'm in a g-suit in the backseat of some darned fighter airplane going 1,000 miles an hour?"

"GUNNY!"

"Sir?"

"Did you make a call to one of your Gunny buddies?"

"No sir. I did talk to Rocky for a minute however."

"Did you..."

## The Apprentice – Chapter 9 – Seismic Activity

“You bet your butt I did. And if there was some way to pick Stacy and Roy, I would have arranged that too.”

“WHAT’S GOING ON?”

“Sorry honey. Stage two alert at Yellowstone again. I talked to Michael and they’ve evacuated Benton Village. He also told me that they buried the propane in an underground tank. I tried to reach you but your cell phone was off. I left a message for you with the CDC Receptionist. I’m afraid GUNNY got a little carried away.”

“It’s all right; I was just wrapping up and visiting with some old friends. Thanks for your concern, Gunny.”

“Was it fun to ride in a fighter going 1,000mph?”

“It wasn’t a very comfortable seat, but the pilot didn’t do anything spectacular.”

“They call them Naval Aviators Ma’am. Pilots are the guys in the Air Force.”

“Dismissed, Gunny.”

“Sir.”

“General, Gunny. Thank you sir, I owe you.”

“Glad to help out Gunny. Do you know how many pounds of fuel an F/A-18F takes?”

“No sir.”

“24,000 pounds of JP5. I’ll find some way to write it off. I’m just glad he had fuel left; it holds 29,930 pounds.”

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Jet A-1 is a kerosene grade of fuel suitable for most turbine-engine aircraft. It is produced to a stringent internationally agreed standard, has a flash point above 38°C (100°F) and a freeze point maximum of -47°C. It is widely available outside the US. Jet A-1 meets the requirements of British specification DEF STAN 91-91 (Jet A-1), (formerly DERD 2494 (AVTUR)), ASTM specification D1655 (Jet A-1) and IATA Guidance Material (Kerosene Type), NATO Code F-35.

Jet A is a similar kerosene type of fuel, produced to an ASTM specification and normally only available in the US. It has the same flash point as Jet A-1 but a higher freeze point maximum (-40°C). It is supplied against the ASTM D1655 (Jet A) specification.

Jet B is a distillate covering the naphtha and kerosene fractions. It can be used as an alternative to Jet A-1 but because it is more difficult to handle (higher flammability), there is only significant demand in very cold climates where its better cold weather performance is important. In Canada it is supplied against the Canadian Specification CAN/CGSB 3.23

JP-4 is the military equivalent of Jet B with the addition of corrosion inhibitor and anti-icing additives; it meets the requirements of the US Military Specification MIL-PRF-5624S Grade JP-4. JP-4 also meets the requirements of the British Specification DEF STAN 91-88 AVTAG/FSII (formerly DERD 2454), where FSII stands for Fuel Systems Icing Inhibitor. NATO Code F-40.

JP-5 is a high flash point kerosene meeting the requirements of the US Military Specification MIL-PRF-5624S Grade JP-5. JP-5 also meets the requirements of the British Specification DEF STAN 91-86 AVCAT/FSII (formerly DERD 2452). NATO Code F-44.

JP-8 is the military equivalent of Jet A-1 with the addition of corrosion inhibitor and anti-icing additives; it meets the requirements of the US Military Specification MIL-T-83188D. JP-8 also meets the requirements of the British Specification DEF STAN 91-87 AVTUR/FSII (formerly DERD 2453). NATO Code F-34.

Depending upon where one reads, the Navy uses JP-5 and may or may not use JP-8. While Rocky may have had JP-8, he most certainly didn't have any JP-5 on hand. They did have Jet A (JP-4). He order 24,000 pounds of Jet A-1 and called it good enough. The specifications for the F/A-18F indicate only JP-5. BP also has guaranteed prices of \$3.00/gal up to \$3.90/gal depending on the airport. It was an expensive plane ride.  $3,600 \times \$3.90 = \$14,040$ . (one way)

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Later that evening the All Hazards/Civil Emergency/Weather Alert Monitor went off. The small digital screen said, "Yellowstone – L3". Ryan tried to reach Stacy and Roy but they didn't answer their phones. He couldn't get a line to the Washington DC area.

Volcano Alert Level THREE – This alert level is declared by USGS when monitoring and evaluation indicate that precursory events have escalated to the point where a volcanic event with attendant volcanologic or hydrologic hazards threatening to life and property appears imminent or is underway. The only way to determine whether the eruption had occurred or was imminent was to turn on the TV. The more things change, the more they stay the same.

TV in 2046 was broadband-fiber optic cable. They had never overcome the problems with satellite TV – atmospheric disturbances always degraded the signal. However, your fiber optic cable supplied your Telephone connection, Wideband Internet connection and Super High Definition TV signal. The same technology had existed 40 years before,

but now you could afford it. If they had video cell phones in 2005, imagine what they had now. (The same thing)

Around 4am, 6am Washington time, Ray and Cindy called to say that they were ok. As of the time of their call, Yellowstone hadn't erupted. However, the USGS was maintaining the Level 3 alert. The next call they received was a collect call from Stacy. She was in Las Cruces, NM and starting west on I-10. 4 hours later, Roy called from El Paso, TX and said he was just getting on I-10. Stacy arrived a few hours later, about 5 hours ahead of Roy. Sometimes things work as you expect them to. Sometimes, they don't. Yellowstone erupted about 1 hour before Roy arrived. It wasn't a problem because the pyroclastic flow couldn't reach that far and the wind was coming from 270° True, 15mph, gusting to 25mph.

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"Do you want me to slave the Claymore's to the motion detectors?"

"I didn't know we had the capability; absolutely not. Get the vaqueros to bring the herd into the barn and then we can all assemble in the Command Center."

"Sure thing, boss. What about the NSD-A AP and AT mines?"

"Maybe later. You can load the LAV-25's if you want to."

"Boss the tanks and LAV's are loaded and ready to go. I took the liberty and also moved the extra tank ammo out of the Command Center and put it in the munitions bunker."

"We shouldn't get much ash fall, Gunny. This is about as far as the Huckleberry Ridge Tuff extended. Excuse me Gunny; I have to talk to Paul and Rocky. You get on the live-stock."

"Paul what is your status at Bisbee-Douglas?"

"Bob called the other guys and they're on the way to the airport to move all of our equipment into the hanger. You son of a gun, you just had to be right one more time."

"Roy should be here any minute and Ray and Cindy called. They're fine. So, I guess my only concern is whether Mike and Bill managed to get out of Benton Village."

"It wasn't like they didn't have ample notice Ryan. Besides Benton Village was a survival community. I think that the worst that might happen to them is that they'd need rescuing from their shelters."

"I agree, providing they can get air. We never installed anything in the air filtration system to cool hot air."

“They probably bugged out.”

“I don’t think they’d leave before they could get all of their horses moved. They had almost 250 head. Anyway, we’re all going to assemble in the Command Bunker in about a half hour. We need to discuss some things, so please have everyone there.”

◦

Bill and Mike had begun moving their horses to a ranch in northern Colorado perhaps a week to ten days before Yellowstone erupted. They were just getting on I-25 in Casper with their final two loads of horses when Yellowstone blew. They narrowly escaped the pyroclastic flow, which almost made it to Casper, a distance of 220+ miles. They gave up in Cheyenne when the ash got so thick they couldn’t see to drive the rest of the way to Ft. Collins. FEMA had been busy coordinating evacuations to the Denver area. So far as Wyoming was concerned, their efforts had been 99% successful. Montana and Idaho were perhaps 66% evacuated in the pyroclastic flow areas and less than 40% evacuated further out. Roy walked in on the middle of the meeting.

“Did you have any trouble?”

“A flat tire but otherwise no problem.”

“We were just discussing our options. Grab a soda or something and sit down and listen, please,” Ryan suggested.”

“We’re going to need to keep the livestock sheltered until we know the extent of the ash fall, but depending on the wind, it should be minimal. Gunny will run the operations center, but he’ll probably need help. Sabrina Wilson can help Gunny, but we’ll need 4 more volunteers. Ramon you’re the foreman so I don’t need to give you any instructions. Just take good care of the horses and seal the barn doors. Now there is an ample supply of the disposable N-95 masks in each of the shelters. I would also advise wearing head covering if you need to leave the underground areas. Jen and I will see to securing the lab. Bisbee is about 900 miles from Yellowstone. I can’t give you any guarantees, but I believe we’re well outside of the danger zone from the eruption. Does anyone have any questions or something to add? No? Ok. If anyone needs anything just ask. *In the field of observation, chance favors only the prepared mind.* We are way ahead of the curve folks. As soon as the ash stops falling we can get back into our homes. Everyone who works for the Corporation will continue to get wages.”

◦

“How can you afford to do that?”

“Business interruption insurance and everyone who is employed by the company has their wages covered.”

“Paul do we have that?” Rocky asked.

“Damned right we do. The fuel business came with it and I added our employees and us to that insurance policy. Don’t worry about it partner; we’re going to be busier than a one armed paperhanger. This unfortunate circumstance is going to give us more business than we can handle. Our only problems will be getting parts and additional fuel.”

“What do you mean busy?”

“Rocky, the ash is going to be hard on the jet engines. That’s rebuilds, if we can get the parts. You can let your supervisor run the fuel operation if someone needs a charter. We’ll have first access to the fuel and we’re going to raise the price a dollar a gallon, effective immediately. I wasn’t going to take charters, but under the circumstances, maybe we’ll take a few.”

“We have company,” Gunny announced. “Hey it’s the new Sheriff. He’s standing next to his car, waving to the camera.”

“Let him in and go up and get him, if you please.”

“Sheriff, nice to meet you. Congratulations, you got our votes. Any news?”

“As a matter of fact, yes. For people who don’t know me, I’m Sheriff Robert Hurst. Bob is fine. Concerning the Supervolcano, there was a major eruption and it has been expanding. The initial pyroclastic flow seems to have reached a little over 200 miles. Most people in Wyoming had evacuated. It was less so in Idaho and Montana, but it could have been worse. We received a FAA bulletin that all aircraft are grounded until further notice. The wind is beginning to shift slightly as that low-pressure area moves to the east. People are taping their windows and taking the recommended FEMA precautions for a chemical attack. We had that in our emergency plan and hopefully we have enough supplies. Are you folks squared away?”

“Bob, I told you some of the precautions I was prepared to implement to keep the ranch secure,” Gunny replied. “They’re all in place now.”

“Those tanks aren’t demiled, are they?”

“We reinstalled the breech blocks, so no, they’re ready to go.”

“It wouldn’t appear from what I know of your operation that you have enough people for the amount of equipment you have.”

“Lots of spares, Bob,” Gunny chuckled.

“We’re going to end up with a substantial number of people in this area. Ft. Huachuca has a large hospital and, of course, the Intelligence units. Information isn’t going to be

our problem. I'm afraid security is. The Mexican Army has begun to take up positions along the border. They've had several days to prepare."

"What did they do, close the border?"

"Apparently, yes. I can't say that it was unexpected. Units are being dispatched from posts in Texas to establish a counter force and secure our side of the border. It's better to avoid trouble than to get into a confrontation. I can't believe that you folks are going to need to occupy your shelters for very long."

"Have there been any estimates given as to how long the volcano will continue to erupt?"

"A little speculation, but nothing definite. I've heard possibly 3-4 weeks. The USGS staff did manage to evacuate in time from the Yellowstone Volcano Observatory. The ash cloud is in the jet stream now. As you know, Bisbee is located at 31°25'6" North, 109°53'52" West (31.418390, -109.897772). We're beginning to see traces of ash."

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The jet stream is narrow, swift currents or tubes of air found at heights ranging from 7 to 8 mi (11.3-12.9 km) above the surface of the earth. They are caused by great temperature differences between adjacent air masses. There are four major jet streams. Although discontinuous at some points, they circle the globe at middle and polar latitudes, both in each hemisphere. The mean position of the stream in the Northern Hemisphere is between lat. 20 and 50 degrees N; the polar stream is between latitude 30 and 70 degrees N. Wind speeds average 35 mi (56.3 km) per hr in summer and 75 mi (120.7 km) per hr in winter, although speeds as high as 200 mi (321.9 km) per hr have been recorded. Instead of moving along a straight line, the jet stream flows in a wavelike fashion; the waves propagate eastward (in the Northern Hemisphere) at speeds considerably slower than the wind speed itself. Since the progress of an airplane is aided or impeded depending on whether tail winds or head winds are encountered, in the Northern Hemisphere the jet stream is sought by eastbound aircraft, in order to gain speed and save fuel, and avoided by westbound aircraft.

o

"Is there anything we can do to help?"

"At the moment, no. I'm concerned that if we get too many people in the area, the infrastructure won't support them and trouble could result. We could be in for a spell of cold weather."

"With the size of our herd, we're producing a substantial amount of manure, Sheriff. We've tilled it into the east section and have been growing grass. We have the means to turn that into a large garden or truck farm. Much will depend on the weather, but we

should be able to produce substantial quantities of food. We can also export some 'fertilizer' to people who might need it."

"Are the horses for sale?"

"Yes they are, but they're pureblood Arabians and quite expensive. We set aside 50 to sell and have sold about 20 out of that group. That leaves perhaps 30 head available. Once the mares foal, we could reevaluate the number available."

"Are you gentlemen secured at Bisbee-Douglas?"

"The equipment is all in the hanger and two employees are maintaining a watch. We're full up on fuel as well. If you have a patrol keep an eye on the facility from time to time, we'd be grateful."

"I can't promise any more than we usually run. When people start to come into the area, my office will be spread very thin."

"How many people are you expecting?"

"Over 100,000."

"We're going to have trouble," Gunny interrupted. "This area can't support that large of a group of people for very long."

"USGS issued a bulletin that points out how some of these seismic events are inter-related. As you may know, the 1964 earthquake in Alaska triggered unusual activity in Yellowstone. There seems to be some concern that this volcanic eruption could trigger more seismic activity in other locations around the United States. The New Madrid Fault, the San Andreas, the Cascadia subduction zone and Alaska were specifically mentioned. I can get you a copy, if you're interested."

"Very interested, Bob. Thank you. I'd hoped that we'd seen the end of trouble 25 years ago, but maybe it's Mother Nature's turn. We kid a lot about Carl Sagan. He may have been a liberal crackpot, but we think he was right."

"I think we're about to find out for certain in the very near future. Who is missing? You have a son in the military academy?"

"He graduated this spring and got married. His new wife, Cindy and he are attending Johns Hopkins University studying medicine."

"Did your other children get home from college?"

Roy and Stacy raised their hands.



“What about the remainder of you folks? Children?”

“Rocky and I each married late in life, Sheriff. We have stepchildren, but they’re secure. Paul, what about your children?” Lance responded.

“They’re in San Francisco or the surrounding area. Perhaps when the FAA allows flights, we should consider trying to reach them and bring them down here. Especially if there is a possibility of either the San Andreas Fault or Cascadia subduction zone responding to the activity at Yellowstone.”

“It may be a month before the FAA allows flights, General.”

“It’s Paul, Bob. We’re all civilians now.”

“Excuse me sir, but it’s General. It always will be as far as I’m concerned. I may need to secure advice from the 4 of you, or Gunny, from time-to-time. We’ve never experienced an event of this magnitude that I recall and planning only takes one so far. FEMA is already overwhelmed and are transferring much of the responsibility for coping with this disaster to the state and local authorities.”

“Be grateful, Sheriff. That beats the heck out of them trying to run the entire show.”

“Perhaps. Arizona has done very little to update that emergency plan that they developed after 9/11/01. I don’t believe that anyone ever believed that Yellowstone would erupt during his or her lifetime.”

◦

Within a week, they were out of the shelters, having only stayed until they determined that the ash fall wouldn’t represent a serious and immediate hazard. Yellowstone was still erupting. Paul contracted some friends in high places and got clearance for a humanitarian flight to and from San Francisco. Rocky and he flew a circuitous route to San Diego and then to San Francisco. The Citation X had been stripped and conventional seats had replaced the four executive tables in the club-seating arrangement. Paul and Mary had two children, a son and a daughter and 5 grandchildren. This strained their seating capacity, but they put two small grandchildren in one seat, not the best idea they ever had, and returned to Bisbee.

Yellowstone stopped erupting after 23 days. The eruption had been accompanied by a series of large earthquakes, the largest of which was  $M_w$  8.7. There was no particular point to considering the damage on the Mercalli Intensity scale; it was simply a XII due to the volcanic eruption.

◦

The Johns Hopkins Medical Institutions is a collective name for The Johns Hopkins Hospital and the health-related divisions of the university (the schools of Medicine, Nursing, and Public Health), all located on the East Baltimore Medical Campus. The Johns Hopkins campuses in Baltimore and Washington, D.C., are convenient to three major airports, national rail service, and interstate highways. Baltimore-Washington International Airport is within a 30-minute drive of any of the Johns Hopkins campuses in Baltimore. Ronald Reagan National Airport offers convenient access to the Washington locations via Metrorail, and Dulles International Airport is west of the nation's capital. Amtrak rail service brings travelers nationwide to downtown Baltimore, within a few minutes' taxi ride of any of the Baltimore campuses, and also offers numerous connections to Washington. Interstate highways serve Baltimore and Washington, I-95 (north-south) and I-70 (east-west).

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Little concern was given for the stepchildren. They lived in the New York City and Atlanta areas. They were contacted but none of them saw the need to come to Arizona. By 2046, many people around the country had the thin film electrical roofs, similar to the roofs at the ranch, reducing but not eliminating the need for commercially generated power. As noted, most of that power was generated using solar and wind sources. Therein lay a problem. Cities with high population densities, e.g., New York City and Atlanta still relied on commercial power for much of their needs. The same situation applied to other cities, such as Denver, Chicago and Kansas City. In the Midwest, there were electrical shortages that couldn't be compensated for by other areas.

Slowly, people began to migrate to warmer climes where they could get energy. Many of the migrants went to Texas, but some went to southern Arizona. The number of quakes on the New Madrid Fault and the San Andreas Fault increased. Cascadia was uncharacteristically silent. The CVO (Cascade Volcano Observatory) and the NMO (New Madrid Observatory) issued warnings. CVO was on level two alert status for several volcanoes, especially Mt. St. Helens. NMO reported several quakes in the  $M_w$  5 and  $M_w$  6 ranges. AVO (Alaska Volcano Observatory) had issued a level three alert for Okmok Volcano. LVO (Long Valley Observatory) had no outstanding alerts. Neither did HVO (Hawaiian Volcano Observatory) because Kilauea and Mauna Loa were continuing to erupt and there was no change in their status. KVERT (Kamchatkan Volcanic Eruption Response Team) continued to report Kamchatkan and Northern Kurile volcanic activity.

The National Volcano Early Warning System – NVEWS – had been formulated by the Consortium of US Volcano Observatories (CUSVO) as a proactive, fully integrated, national-scale monitoring effort that ensured that the most threatening volcanoes in the United States were properly monitored in advance of the onset of unrest and at levels commensurate with the threats posed. Volcanic threat is the combination of hazards (the destructive natural phenomena produced by a volcano) and exposure (people and property at risk from the hazards).

Volcanic ash typically covers a much larger area and disrupts the lives of far more people than the other more lethal types of volcano hazards, but information about ash and what to do with it was not readily available. By creating an online resource about the known effects of volcanic ash and summarizing how people had dealt with the tiny abrasive rock particles during and after previous eruptions, the USGS and partners had hoped people could learn to prepare and protect themselves from future volcanic ash fall, as in the immediate instance. Have you ever heard that you can lead a horse to water, but you can't make it drink?

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Have you ever gone onto the Internet and tried to get information after a major disaster? In 2005, when terrorists bombed 3 undergrounds and a bus in London, it was difficult, if not impossible to access sources like the UK Guardian. Those were the days of DSL, cable broadband and dialup access. These were the days of Wideband Internet connections using broadband-fiber optic cable. Servers and switches had been upgraded repeatedly. However, there was a lag in meeting demand and when millions of people tried to access the USGS sites that provided the information concerning volcanic ash, the servers became overloaded and slowed to a crawl. The older generation, remembering dialup, waited patiently. The younger generation turned their computers off, jumped in their vehicles and headed out, destination unknown – probably south or east.

Ryan and Jennifer had been born in 1985. They were now 61 years old. Lance and Gunny were the oldest members of the group, Lance was 64 and Gunny was 65. Everyone had seen enough heartbreak in their lifetimes to last them forever. Regrettably, the heartbreak was only beginning. Only chance would prevent it from being worse. Scattered across the world's oceans are a handful of rare geological time bombs. Once unleashed they create an extraordinary phenomenon, a gigantic tidal wave, far bigger than any normal tsunami, able to cross-oceans and ravage countries on the other side of the world. Only recently have scientists realized the next episode is likely to begin at the Canary Islands, off North Africa, where a wall of water will one day be created which will race across the entire Atlantic Ocean at the speed of a jet airliner to devastate the east coast of the United States. America will have been struck by a mega-tsunami.

Scientists now realize that the greatest danger comes from large volcanic islands, which are particularly prone to these massive landslides. Geologists began to look for evidence of past landslides on the seabed, and what they saw astonished them. The sea floor around Hawaii, for instance, was covered with the remains of millions of years' worth of ancient landslides, colossal in size.

## The Apprentice – Chapter 10 – Considerations

But huge landslides and the mega-tsunami that they cause are extremely rare – the last one happened 4,000 years ago on the island of Réunion. The growing concern is that the ideal conditions for just such a landslide – and consequent mega-tsunami – now exist on the island of La Palma in the Canaries. In 1949 the southern volcano on the island erupted. During the eruption an enormous crack appeared across one side of the volcano, as the western half slipped a few meters towards the Atlantic before stopping in its tracks. Although the volcano presents no danger while it is quiescent, scientists believe the western flank will give way completely during some future eruption on the summit of the volcano. In other words, any time in the next few thousand years a huge section of southern La Palma, weighing 500 thousand million tons, will fall into the Atlantic Ocean.

What will happen when the volcano on La Palma collapses? Scientists predict that it will generate a wave that will be almost inconceivably destructive, far bigger than anything ever witnessed in modern times. It will surge across the entire Atlantic in a matter of hours, engulfing the whole US east coast, sweeping away everything in its path up to 20km inland. Boston would be hit first, followed by New York, then all the way down the coast to Miami and the Caribbean. Other scientists disputed this.

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It hasn't happened yet and may not happen for 5,000-years. Or, perhaps it could occur tomorrow. The age of the planet is estimated at 4.6 billion years give or take. Surely the planet must be contracting as the core cools. Earth is unique in our solar system for having an enormous quantity of surface water. Given that the inner core is constantly expanding, and thus the surface area of the Earth is also expanding, and considering that ocean water levels are continuing to rise (as demonstrated by the continental shelf, which was once above the surface and is now 600' below), where does all the water come from?

There is another attribute our world has that is not found on the other worlds of our system – we are covered with life, and an enormous variety of forms. Water and Life must be related.

As it turns out, most land-based ecosystems produce more water than they consume. Plant bacteria in particular, excrete water as a “waste product” by consuming oxygen and hydrocarbons. It is reasonable to assume that our hydrosphere is a by-product of the life of the land. As the amount of life increases, so does the depth of the water. It is a good thing that the Earth is expanding, or we would be a water world by now.

Considering that water is generated by life, rather than a geological process, we can now proceed to refine our view of the crust of the Earth.

Examining the crust, we find that under its original formation, the top layers of the molten asthenosphere solidify, as the lighter elements move to the surface. Over this solid

crust of gabbro basalt, meteoric dust and rock fall, forming a second, lighter crust mainly of silica and aluminum (stony meteorites). This is a typical crustal formation of a planet like Venus, where no hydrosphere exists. Geophysicists name these two crustal layers “Simatic” and “Sialic”, after the primary elements of their composition – Silicon / Magnesium (gabbro basalt, SIMA for short), and Silicon / Aluminum (or SIAL for short).

The Earth expands; the outer crust (both layers) crack open, and thru the cracks pour magma, which solidifies to more SIMA. We now have a surface where the SIMA is exposed, and at a lower elevation than the surrounding SIAL sitting on top of the SIMA. These great basins become the repositories for the water generated by the microscopic life forms existing in the SIAL layer, and develop into seas and oceans. The SIMA thus forms an underlying, global crust with large cracks, making tectonic plates. The SIAL forms the continents.

The interesting conclusion – life did not form in the oceans, life started out on the land, and formed the oceans, in which higher forms of life evolved, which moved back on to the land. Since the amount of water is constantly increasing on the planet, as the continental shelves were at one time exposed to the air, it is an indication that the time may be near for another quantum expansion of the planet.

It is interesting to note how the “ancient records” greatly differ in time scales from modern geologists. When examining the methods of long-term dating, I did discover that there is a cumulative, exponential error in geologic dating that relies on radioactive decay. Anything beyond the 5,000-year range of carbon dating may be drastically wrong, and the Earth may be much younger than ever conceived – by as much as a factor of 1,000:1. The 4.6 billion year age of the Earth may be as little as 500 million, and mankind may have been present when dinosaurs walked the Earth, as actually shown etched in ancient Peruvian stone tablets. Also, recent fossil evidence in Texas is supporting this hypothesis – much to the objection of anthropologists – having found human footprints petrified in rock next to dinosaur tracks, as though the humans were hunting the dinosaurs. Originally thought a hoax, until they discovered the tracks continued under a large cliff, and when excavated, showed the same human/dinosaur prints.

It appears that a major disruption of the Earth’s surface is due, as well as a magnetic pole shift. It may be possible to determine where the breaks will occur; plate tectonics are fairly well defined but typically limited to oceans. Breaks under the continental crust can also be identified by the separation of landmasses, and mountain ranges.

o

If a woman working alone in a private laboratory can find a cure for malaria, anything is possible. Perhaps because there are things like Quinine Sulfate, some people didn’t see the urgency in eliminating the disease. Nevertheless the CDC was excited at the prospect that one of their brightest young interns from so many years before had possibly discovered a permanent cure for malaria. Without regard to the present situation in the United States, a full out effort to test Jennifer’s solution was immediately implemented.

Perhaps they were thinking of people like Jenner and Pasteur as they hurried to evaluate the new drug. The year 2046 marked the two hundred fiftieth anniversary of Edward Jenner's first experimental vaccination – that is, inoculation with the related cowpox virus to build immunity against the deadly scourge of smallpox. If one were to choose among the greatest benefactors of humanity, Louis Pasteur would certainly rank at the top. He solved the mysteries of rabies, anthrax, chicken cholera, and silkworm diseases, and contributed to the development of the first vaccines.

Dr. Jennifer Perkins Williams had contributed in no small part to finding a cure for the Ebola virus, even before she became a physician. If her latest discovery proved out, her name would be remembered alongside of that of people like Dr. Jonas Salk. In America in the 1950s, summertime was a time of fear and anxiety for many parents; this was the season when children by the thousands became infected with the crippling disease poliomyelitis, or polio. This burden of fear was lifted forever when it was announced that Dr. Jonas Salk had developed a vaccine against the disease. Salk became world-famous overnight, but his discovery was the result of many years of painstaking research.

Jonas Salk was born in New York City. His parents were Russian-Jewish immigrants who, although they themselves lacked formal education, were determined to see their children succeed, and encouraged them to study hard. Jonas Salk was the first member of his family to go to college. He entered the City College of New York intending to study law, but soon became intrigued by medical science.

While attending medical school at New York University, Salk was invited to spend a year researching influenza. The virus that causes flu had only recently been discovered and the young Salk was eager to learn if the virus could be deprived of its ability to infect, while still giving immunity to the illness. Salk succeeded in this attempt, which became the basis of his later work on polio.

After completing medical school and his internship, Salk returned to the study of influenza, the flu virus. World War II had begun, and public health experts feared a replay of the flu epidemic that had killed millions in the wake of the First World War. The development of vaccines controlled the spread of flu after the war and the epidemic of 1919 did not recur.

In 1947, Salk accepted an appointment to the University of Pittsburgh Medical School. While working there, with the National Foundation for Infantile Paralysis, Salk saw an opportunity to develop a vaccine against polio, and devoted himself to this work for the next eight years.

In 1955 Salk's years of research paid off. Human trials of the polio vaccine effectively protected the subject from the polio virus. When news of the discovery was made public on April 12, 1955, Salk was hailed as a miracle worker. He further endeared himself to the public by refusing to patent the vaccine. He had no desire to profit personally from the discovery, but merely wished to see the vaccine disseminated as widely as possible.

Salk's vaccine was composed of "killed" poliovirus, which retained the ability to immunize without running the risk of infecting the patient. A few years later, a vaccine made from live poliovirus was developed, which could be administered orally, while Salk's vaccine required injection. Further, there was some evidence that the "killed" vaccine failed to completely immunize the patient. In the US, public health authorities elected to distribute the "live" oral vaccine instead of Salk's. Tragically, the preparation of live virus infected some patients with the disease, rather than immunizing them. Since the introduction of the original vaccine, the few new cases of polio reported in the United States were probably caused by the "live" vaccine, which was intended to prevent them.

In countries where Salk's vaccine has remained in use, the disease has been virtually eradicated. Perhaps this is why it is called the practice of medicine. I just wish that they would practice on someone else. Medicine has been good to your author. He has been practiced on a lot. Dr. Salk's last years were spent searching for a vaccine against AIDS. Jonas Salk died on June 23, 1995. He was 80 years old. A memorial at the Institute with a statement from Salk captures his vision: *Hope lies in dreams, in imagination and in the courage of those who dare to make dreams into reality.*

There are two kinds of polio vaccine: IPV, which is the shot recommended in the United States today, and a live, oral polio vaccine (OPV), which is drops that are swallowed.

Until recently OPV was recommended for most children in the United States. OPV helped us rid the country of polio, and it is still used in many parts of the world. Both vaccines give immunity to polio, but OPV is better at keeping the disease from spreading to other people. However, for a few people (about one in 2.4 million), OPV actually causes polio. Since the risk of getting polio in the United States is now extremely low, experts believe that using oral polio vaccine is no longer worth the slight risk, except in limited circumstances, which your doctor can describe. The polio shot (IPV) does not cause polio. If you or your child will be getting OPV, ask for a copy of the OPV supplemental Vaccine Information Statement. (FACT)

What was this magnificent discovery of Dr. Salk's? He killed the poliovirus with formaldehyde and injected the resultant intact dead virus, which still caused the body to produce the antibodies. It was as complicated and as simple as that. Causing cowpox cured smallpox. As I said before, the more things change, the more they stay the same. Why haven't they cured the AIDS virus? Inquiring minds want to know. Jennifer, do you have a moment?

o

In 1984, 3 years after the first reports of a disease that was to become known as AIDS, researchers discovered the primary causative viral agent, the human immunodeficiency virus type 1 (HIV-1). In 1986, a second type of HIV, called HIV-2, was isolated from AIDS patients in West Africa, where it may have been present decades earlier. Studies of the natural history of HIV-2 are limited, but to date comparisons with HIV-1 show

some similarities while suggesting differences. Both HIV-1 and HIV-2 have the same modes of transmission and are associated with similar opportunistic infections and AIDS. In persons infected with HIV-2, immunodeficiency seems to develop more slowly and to be milder. Compared with persons infected with HIV-1, those with HIV-2 are less infectious early in the course of infection. As the disease advances, HIV-2 infectiousness seems to increase; however, compared with HIV-1, the duration of this increased infectiousness is shorter. HIV-1 and HIV-2 also differ in geographic patterns of infection; the United States has few reported cases.

◦

“What else can happen?”

“I don’t know Gunny. We could be a whole lot worse off. We could have stayed in Benton Village.”

“Benton Village was the right place at the right time, Ryan. Let’s just hope that the ranch is the right place to be this time. Even if California or Missouri have earthquakes, we should be far enough away. If any of the volcanoes in the Cascade, or possibly the caldera in Long Valley let go, I think we’d still be in the right place. The only other thing that I can think of would be that volcano in the Atlantic Ocean collapsing. I don’t think the water would reach to Arizona, do you?”

“It would kick the crap out of east Baltimore, Maryland, though.”

“How much warning did BBC say we’d have if that happened?”

“If I recall correctly, a few hours.”

“Would it fall off without any warning or would it fall off into the ocean because the volcano became active?”

“The last eruption was almost 100 years ago, 1949. That caused the crack that BBC was talking about. It appeared in conjunction with an eruption.”

“So would it be fair to conclude that if the volcano erupts again, the rock might fall off?”

“Perhaps.”

“Could Ray and Cindy get to high ground in time?”

“That is a very good question. I just wish I knew the answer.”

“Ray is a good soldier, if I’m any judge. He has that SUV of his and the means of egress, presuming the roads are open. The school is in between I-95 and I-895, if I recall. They should be able to get to I-695 and take it to I-83 and go to Harrisburg, PA



where they can pick up I-76. They could also pick up I-70 and be even better off. Harrisburg is only about 310'MSL. Where I-70 junctions in Pennsylvania is closer to 1,000'MSL."

"You've been studying maps again."

"I most certainly have, Ryan. And I sent all of that information to Ray in an email."

"How long would it take them to drive to the I-70 junction in Pennsylvania?"

"A couple of hours, it's only about 120 miles."

"What about Lance and Rocky's stepchildren? They're in New York City and Atlanta?"

"I don't know. They might not be able to get out of New York City in time to avoid the tsunami. The kids in Atlanta would have more time than Ray and Cindy, provided they have a heads up."

"I'll mention it to Lance and Rocky."

o

"Ryan, our stepchildren are in Atlanta," Rocky explained. "I'll give them a heads up and they should be ok. You might want to share the information with Lance; his stepchildren are in the Big Apple."

"Thanks, Ryan, but I've already warned them. I might as well have been talking to a stonewall. The World Trade Center Disaster happened long before they were born. They also missed the epidemic and the people who broke out of Attica didn't make it to the city. The worst thing they've ever had to contend with is the current power outage. I suggested that we had power here and that they should try to come out, but they weren't interested. Tell Gunny thanks, if I don't see him first."

"Gunny, Rocky is giving his kids a heads up. Lance invited his to come to Bisbee but they weren't interested even though they don't have power in New York. What is it about people who live in big cities?"

"New Yorkers all think Columbus, Ohio is the wild, wild west. You've been there, people 12 wide rushing down the sidewalks, eyes to the ground. They have blinders on, much of the time. Besides, 9/11 was 45 years ago. That was a previous generation that learned that the world isn't a nice place."

"Gunny, nothing has changed."

"Sure it has. Russia wiped out the Middle East. Ebola and other things reduced the population of the world by half. AIDS has killed half the population of Africa. We had two

major wars on American soil. Nature waited patiently and is taking her turn now. People would rather sit in the dark than get into an automobile and drive to the light. Hmm, maybe you're right, same stuff, different day."

"How many people in the area now?"

"Bob said 150,000 new people. They're resources are stretched to the max."

"How does that compare to his original estimates?"

"About double the people as he expected and we haven't seen the half of it. If things continue at this rate, we're looking at several hundred thousand people. There is NO way the infrastructure can support that many people."

"We need more people."

"At Benton Village, Ray brought in retired LEO's and military, like me. The US government isn't letting anyone out of the military until the emergency has passed. We won't be getting any fresh retirees from that source. It's the same thing in the Law Enforcement community. Anyone available is someone they don't want on their force and we wouldn't want on the ranch."

"Don't you have a Gunny's network? We have a General's network. Generals aren't necessarily who we'd want anyway. All Chiefs and no Indians."

"That's funny."

"What's funny?"

"This is Arizona. Indians we can get, by the truck full. That would be the same problem that we would have with cops. The Indians we could get we wouldn't want. Maybe we could find some veterans among the recent immigrants."

"Would we want them?"

"We could screen them. I could mention it to Bob and anyone he thought would be ok could be referred to Rocky and Paul's facility at Bisbee-Douglas. We could screen them there and if we thought that they would be a welcome addition to our group, invite them to move here."

"We don't have housing for anyone."

"Surely we could erect some tents or something. I know where we can get tents, even now in the middle of this disaster."

"Where?"

“North Carolina. Ex-military tents, sold by an ex-military fellow I happen to know. I could probably get a truckload.”

“Contact him and see what’s available. He’s probably sold out by now.”

“Boss, there is sold out and there is *sold out*.”

“We have gold.”

“He has tents. I’ll get a truckload. I’ll also call Bob and get him and his Deputies screening for ex-military.”

◦

“Hey you old reprobate, Gunny Roberts... Arizona, Bisbee, to be exact... Tents, a truckload and we have gold... The whole damned semi-load... Come to Bisbee-Douglas airport and find the hanger for *Two General’s Aviation*... A week is soon enough, sure... Thanks Gunny.”

“Is the Sheriff in, this is Gunny Roberts? I’ll hold... Bob, Gunny Roberts... Fine thanks... We’re looking for a few good men and women, ex-military that may be among the recent immigrants... Food and housing and a job, we have more equipment than we have people... You can? Great, send them to the *Two General’s Aviation* Hanger at Bisbee-Douglas and we’ll screen them further... Oh, just tell them it’s about a possible job offer, but don’t give them any details. If they work out, we’ll fill them in... Oh, tents, I have a truckload coming in from North Carolina... You did? Well, maybe he got some more in. We bought all he had. Thanks Bob.”

◦

“Ryan, Gunny. Polish the gold, I have a semi-load of tents coming in from North Carolina and Bob is looking for a few good men and women.”

Everybody knows about the so-called *Chief’s Network*. The Navy doesn’t have a monopoly on old friends keeping in touch with each other. Now if you could sell a tent to anyone for cash, or sell it to a buddy who had gold, which would you do? The United States Armed forces has been sexually integrated for some time. Many women died in Iraq. The United States was, for all practical purposes a latecomer in integrating their forces. Jessica Lynch was sorta cute but I’ve seen prettier women. Female friends of hers, whose rifles didn’t jam due to faulty maintenance, died in the operation that she was captured in. Someone who should know told me, that’s how I know. Believe what you want, it’s no skin off my nose.

Sometime after Lynch’s rescue, several sources alleged the story of Lynch’s rescue was distorted and exaggerated by the United States government in an effort to undercut

public resistance to the 2003 invasion of Iraq. Iraqi doctors at the hospital in question claimed Lynch was well cared for by hospital personnel and virtually unguarded at the time that she was rescued by American forces; rather, Lynch's "rescue" was a publicity stunt that was staged, and the subsequent news reports were carefully controlled propaganda. Though Pentagon statements claimed that Lynch emptied her rifle fighting off her attackers, later reports and Lynch herself indicated that this was not the case; in fact her rifle jammed on the first round and she did not offer any resistance to her capture. The story is now believed to have stemmed from the mistranslation of an intercepted Iraqi message which referred to one of her male fellow soldiers.

It doesn't matter and that's not the point. Controversy also arose regarding the varying treatment and media coverage of Lynch and Shoshanna Johnson, an African-American soldier captured in the same ambush as Lynch, but rescued later. Critics, including Rev. Jesse Jackson, contended that Johnson's race was a major reason that Johnson received little media attention and a smaller disability pension as compared to Lynch. Other criticism has focused on the ignoring of other members in her unit, such as Lori Piestewa. It should be noted, however, that Lynch always spoke with great respect for her fellow soldiers, especially the ones who were killed in the incident. Lynch had been best friends with Piestewa and at her homecoming gave this tribute "I especially wanted to mention my best friend Lori Piestewa who died...I was proud to go to war with her and she will always be in my heart".

The point is that there are fine male and female soldiers within our armed forces. Anyone who is willing to pick up a gun and defend the ranch will undoubtedly be welcome, regardless of gender. It will help their case if they're good soldiers; Gunny knows the difference and so do the Generals. Everyone believes that I'd just check her bra size. Not! (Well... maybe)

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The initial response wasn't overwhelming. Bob and his Deputies were screening very carefully. Anyone Bob wouldn't want with the Sheriff's Department wasn't told of the opportunity. Their names went on a separate list, a watch list. Assuming they had time of course and they didn't, not really. Soldier and Marine veterans experienced with the Abrams tanks were in particular demand, maybe Special Forces, too. But they need just about every discipline. If they brought in people, they need cooks, hospital corpsmen, mechanics and supply people.

They were also going to need more individual weapons. There were a large number in the arsenal, but not enough for 2 Platoons. Lance talked to his golfing partner at Ft. Huachuca. The Army had stored the M16's and M4 carbines when they'd gone to the HK416. They were still using the M9 pistol but the Intelligence Group had some ancient M1911's stored. The weapons had been slated for disposal but the General's predecessor hadn't been big on disposing of weapons. They had been shown as disposed of in the paperwork, and the current Commander couldn't do anything that would get his pre-

decessor in trouble. Lance was more than welcome to the weapons; he just needed to get them the heck off the post.

Gunny got drafted to make arrangements. He hooked up with a Sergeant First Class he knew at Ft. Huachuca and they transferred a couple of 5-ton trucks of weapons to Bisbee-Douglas. The ban on flying had been rescinded but most of the traffic in the air was either military or charter. Most of the commercial flights limited themselves to the east coast. Flying in ash clouds is always dangerous. It wasn't worth the risk.

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"Dad? Ray. We're coming out for my summer leave."

"How much do you have built up?"

"I have more than 30 days. But, I'll be going to summer school so I can only use about 3 weeks. Cindy and I talked it over, and she's going to spend the summer there, if that's ok."

"You know it is Ray. How is medical school going?"

"Very tough school, Dad. Anatomy was a challenge. We're both doing well in school. I got a copy of Gray's on DVD II I can give to Mom."

"When will you arrive?"

"I'll call when I know."

Mike and Bill finally got out of Cheyenne. They had reestablished themselves in Ft. Collins, Colorado area. They didn't have another village, but they did have a nice horse ranch raising Arabians. They were having their share of problems getting feed for the horses, but they managed. Their new ranch was in the area of Pierce, CO, about 440 miles from Yellowstone. They had a lot of ash and it was very cold in Colorado in the aftermath of Yellowstone erupting. Still, it got very cold in Benton Village, back when there was a Benton Village.

## The Apprentice – Chapter 11 – Eye of the Storm

Redoubt volcano, near Anchorage Alaska, began erupting on December 14, 1989. On the following day, KLM Flight 867, a 747-406M airplane powered by GE CF6-80C2 engines entered an ash cloud at 25,000 ft. and experienced flameouts on all four engines.

During descent to 25,000 ft., the airplane entered a thin layer of altostratus clouds when it suddenly became very dark outside. The crew also saw lighted particles (St. Elmo's fire) pass over the cockpit windshields. At the same time, brownish dust with a sulfurous smell entered the cockpit. The Captain commanded the Pilot flying to start climbing to attempt to get out of the volcanic ash. One minute into the high-power climb, all four engines flamed out. Due to the volcanic ash and dust in the cockpit, the crew donned oxygen masks.

The Pilot Flying noticed the airspeed descending, initially at a normal rate (given the airplane's altitude) but suddenly very fast. All airspeed indications were then lost due to volcanic dust contamination in the pitot system. At the same time, there was a stall warning and the stick shaker was activated with no signs of buffeting. The Pilot Flying rather firmly put the nose of the aircraft down to avoid a stall and initiated a turn to the left in a further attempt to get out of the volcanic ash.

The crew noticed a "Cargo Fire Forward" warning and deduced that the volcanic ash caused the fire warning, so no further action was taken.

As the engine spooled down, the generators tripped off and all instruments were lost except for instruments powered by the batteries.

During the time the engines were inoperative, the cabin pressure remained within limits and no passenger oxygen masks deployed. The crew elected not to deploy the masks because the passenger-oxygen-mask system would have been contaminated by volcanic dust in the cabin air.

An emergency was declared when the airplane passed through approximately 17,000 ft. The crew stated that a total of seven or eight restart attempts were made before engines 1 and 2 finally restarted at approximately 17,200 ft. Initially, the crew maintained 13,000 ft. with engine 1 and 2 restarted, and, after several more attempts, engines 3 and 4 also restarted.

After passing abeam and east of Anchorage at 11,000ft, the airplane was given radar vectors for a wide right-hand pattern to runway 06 and further descend to 2,000 ft. The Captain had the runway continuously in sight during the approach; however, vision through the windshields was impaired due to "sandblasting" from the volcanic ash in such a way that the Captain and the First Officer were only able to look forward with their heads positioned well to the side. Finally the airplane did land safely, but approximately 80 million dollars was spent to restore the plane, which included replacing four

engines. The in-depth account of this incident helped researchers devise a procedure of what a crew should do when they encounter an ash cloud.

That's why commercial flights didn't come west. BTW, supersonic commercial transport had never panned out. Probably for the same reason the Concorde stopped flying, sonic boom. The Concorde was limited as to where it could fly, primarily because of its sonic boom. Try as they might, they couldn't change the laws of science.

◦

In a nearly identical incident on 24 June 1982, British Airways Flight 9 from London Heathrow to Auckland, whilst on the sector from Kuala Lumpur to Perth, Western Australia, flew into a cloud of volcanic ash from the eruption of Mount Galunggung, causing all four engines to fail due to compressor stall. The aircraft was diverted to Jakarta, and was able to glide far enough to exit the ash cloud, restart its engines and land safely.

◦

"I heard from the CDC, honey. Their preliminary tests have confirmed that the vaccine really works."

"What now?"

"I've had several offers from pharmaceutical firms. I have no idea how they heard about it, but they want to buy the patent."

"What are you going to do?"

"I haven't decided. I'd be satisfied just to recover our investment in the lab/clinic."

"If you sold it to a company for a nominal price, they could manufacture and distribute the vaccine at an affordable price and still make a profit."

"I was thinking the same thing. Maybe they could devote more money to AIDS research."

"Get a good attorney and negotiate. Maybe he can get them to split their offer into money for you and money for research."

"Isn't that a little altruistic? Assuming that the company would devote the money to research?"

"Never assume, Jen. Make it a contractual commitment. They give you a few million for the formula and commit to spending a specified sum over a specified period on one particular line of research."

◦

Remember the fortuitous circumstance? During the 1949 eruption the western half of the Cumbre Vieja ridge slipped several meters downwards into the Atlantic Ocean. It is believed that this process was driven by the pressure caused by the rising magma heating and vaporizing water trapped within the structure of the island. During a future eruption, the western half of the island, weighing perhaps 500 billion tons, could slide into the ocean. This could generate a giant wave known as a mega-tsunami around 1 km high in the region of the islands. The wave would fan out across the Atlantic and strike the Caribbean and the eastern American seaboard several hours later with a wave possibly 90m high causing massive devastation along the coastlines. However, some scientists think the flank of the island would crumble away, instead of falling into the ocean in a large mass, sparing the coasts.

Mega-tsunamis are only generated by certain specialized conditions, such as those existing on southwestern La Palma, and so are fortunately quite rare. It may be possible to avert the landslide simply by setting up a large strip mine and relocating the perched material to sea level. Such an operation would be massively expensive (although less expensive than a tsunami) and would have to be carried out over an extended time. The Spanish government couldn't afford to set up a strip mining operation.

The volcanoes on La Palma began to erupt again. These were the largest eruptions in hundreds of years. Everyone involved in the debate over the mega-tsunami was right. The original researchers claimed the rock would slide off in one large hunk. Others argued that the rock would come off in pieces. They were both right, it came off in two pieces, 4 hours apart. Ray and Cindy were in Bisbee, just starting Ray's leave. The Spanish government issued warnings and Rocky's stepchildren bolted from Atlanta. Lance's stepchildren couldn't all get out of New York City.

◦

Jennifer and the attorney were in late stage negotiations with Pfizer Pharmaceuticals. Pfizer had the worldwide network to enable them to distribute the vaccine when the FDA approved it. Lederle Laboratories, Wyeth Laboratories, Connaught Laboratories, Parke-Davis & Company and Eli Lilly & Company were the primary vaccine producers in the US. Apparently Pfizer wanted a piece of the action. Most of the market for the vaccine was obviously overseas, especially in the southwest Pacific. Pfizer was reluctant to commit to AIDS research; at least so far a contractual commitment went. Jennifer got very angry and told the attorney to bill her for his time. She sold the vaccine patent to the CDC for enough to recoup her costs for the clinic/lab. The CDC could do what they wanted to with the vaccine. Give it away for free, for all she cared.

◦

The USGS was estimating that the ash from Yellowstone was about the size for the Huckleberry eruption, 2,500 km<sup>3</sup>. Bisbee got very little ash, but Colorado was a different



story. Mike and Bill were up to their ashes in ash. More figurative than literally; literally, the ash was much deeper. They were grateful they hadn't been able to buy the ranch. The former owner only agreed to rent it to them. Mike contracted Ryan. Ryan rented two adjoining sections, to the north, and told Mike to start hauling horses. A task easier said than done, 250 head of horses require a lot of trucks. It would be up to Mike and Bill to build their own barn, but Ryan checked with the manufacturer of his prefabricated stalls and they had a large inventory.

Johns Hopkins University in Baltimore suffered immeasurable damage from the tsunami. Ray returned early to arrange for a different medical school for him and Cindy. Guess where they ended up finishing medical school? Right there in Arizona at the:

University of Arizona College of Medicine

1501 N. Campbell Avenue

Tucson, AZ 87524

Year instruction started: 1967

Language of instruction: English

Duration of basic medical degree course, including practical training: 4 years

Entrance examination: Yes

Foreign students eligible: No

It was a fine school with an 80-year tradition of producing good physicians. Tucson is only 96 miles from Bisbee. Many of the medical schools on the east coast were either closed down or overloaded. Ray could be home on weekends and Jennifer persuaded Cindy to help her in the clinic. The clinic was opened to the Bisbee residents in the immediate area of the ranch.

Once they had a few veterans screened and aboard, Gunny set up refresher training. Their new staff was issued a M16 or a M4 depending on whether they were in a tank, LAV-25 or not. The tankers and LAV-25 crews got 3 M-4 carbines for the vehicle and M1911's. The other people were issued M16A3s and M16A4s. They were also issued LBVs and other equipment including current generation body armor, courtesy of the Sheriff. Most of the tents were the 17'6" square variety, but the Gunny from North Carolina had one command tent and a couple of the mess tents.

The two sections of ground that had been rented for Mike and Bill were already fenced so they put up a fence to direct the horses to the new pasture and erected the tents in the portion of the original section. The second section of ground was cut and baled and the ground turned to lie fallow for the forthcoming spring planting of vegetables. They also began marketing compost to other people in the area to use in fertilizing their gardens.

o

"We need more Claymores, boss."

“What for?”

“To protect the horses. We’ve already run off a couple of rustlers.”

“Already? I didn’t believe that would happen this soon.”

“Have you talked to the Sheriff lately?”

“I’ve been too busy, Gunny. What’s new?”

“People – lots of people. Between that damned eruption and the mega-tsunami, Texas, New Mexico and Arizona are being overrun. The good news is that we now have 100 people and their families in our little tent fort. The bad news is that the infrastructure is coming apart at the seams.”

“We have 8 tanks, that’s a total crew of 24 plus support personnel. Those 3 LAV’s have a crew of 3 plus 8 combat soldiers. That’s another 33 people plus their support people. If you have 100 people, we should have plenty.”

“Not necessarily, sir. I have 2 squads at Bisbee-Douglas to protect *Two General’s Aviation* facilities. We have mechanics, cooks, communications people, some intelligence people and so forth. I know it might sound silly to you, but with all of the horses available, we should assemble a cavalry troop to protect the ranch. Four sections of ground is a lot of area.”

“If I say no, you’d probably just do it anyway behind my back. Go ahead, but only get good riders. How many people are you talking about?”

“About 60 if I can find them. We’ll need the troops, and people to care for the livestock.”

“Do we have enough tack?”

“I can get more tack, I know some people.”

“What about weapons and ammo? Do you have enough tents? We’re going to need a school for all of those children. Our medical supplies are limited.”

“Were limited. The basement of the clinic is full. Some of the husbands and wives of the new people were schoolteachers. They’ve set up a school in that large command tent. We’re a little short on books, but the kids are sharing. We acquired chainsaws and a few of the people are harvesting timber for firewood. Officers make the decisions and the noncoms implement them. I brought our wealthy Gunny aboard and put him in charge of supply. He’s very adept at acquiring things. Buying, not stealing. He acquired another truckload of tents and what we didn’t need, he sold to the Sheriff. Paul and Rocky are spending more time in the air than on the ground. They bought a Gulfstream

to go with their Citation and hired a couple of pilots, Air Force people. Hell, they even had to rent a second hanger to do repairs in.”

“What else is new?”

“One of Lance’s kids survived and one died with his family. The one who survived was lucky enough to get out of the city. She arrived a couple of days ago with her family. Her husband was a former Marine Corps officer who didn’t buy into her liberal beliefs. I had him in mind, subject to your approval, to command the cavalry troop. He rides, as it happens.”

“I think I’ll go hide in my shelter. Let me know when you need me to run something.”

“General, I thought perhaps you could take over the marksmanship training. I’m spread a little thin myself. Sabrina is in charge of the operations center. She can turn out the troops when needed without my help.”

“I’ll talk to Ramon and have him pick out enough horses so that we have two mounts for every one of your cavalry troop. What were you thinking about for saddles?”

“McClellan’s, they’re light and happen to be available. These are the later version, the M1928. I can get scabbards and saddlebags too. They’ll need the saddlebags for extra ammo. I was hoping that Ramon and his crew could teach them to ride a little better.”

o

The aftermath of massive wars has usually been followed by a time of adaptation and modification of previous equipment, in order to utilize the existing massive surplus stocks. In the 1920s, as in the years following the Civil War, there were official modifications to military saddlery that were performed by company and regimental saddlers. The testing for the proposed improvements to the M1904 McClellan began in 1923-4 and resulted in the adoption of the modification known as the Model 1928 McClellan. This saddle reflects the changes in the theory of horsemanship that took the military world by storm before the war. Based on the work done by Caprilli of Italy, the method was taught to many officers attending the Saumur riding school in France before, during and after the war. This theory, basically stated, emphasized a closer relationship between the movement and action of the rider and horse. In terms of equipment changes to the McClellan, it would require increased leg contact with the animal, which had never been very good to begin with, and shorter, lighter stirrups.

The actual changes in the saddle are quite noticeable. The old rigging was cut away at the edges of the saddle, with the quarter straps nailed down and sewn into the edge. The old stirrup straps were discarded and replaced with lighter weight straps, usually equipped with roller buckles.

The hooded wooden stirrups had their hoods removed, and a large section of the stirrup was band sawed off, so that the tread would measure about 2", instead of 4.5". Unaltered hooded stirrups were used as well.

The greatest change was the addition of a saddle skirt and "English" type girth webbing and straps. To accomplish this, the seams on the outer edges of the saddle were opened. The skirt was nailed to the surface of the tree, after which the girth webbing was nailed down. The straps, three in number, were usually sewn and riveted to this webbing. At this point the cover seam was resewn. This may have been done to retain the strength in the seam and save time. Later modifications also replaced the sheepskin linings with hard felt pads, sewn on, as were the previous sheepskin linings. The girth was also changed during the 1930's, with the olive webbing being supplemented by a mohair cord girth. This latter girth was also issued with the M1936 Phillips officers' saddle.

The first M1928 kits were furnished to organizational saddlers in 1931, so the M1928 designation is somewhat of a misnomer.

o

Gunny called someone he knew in California and got the Claymores. He also was able to get more ammunition, including some practice ammo for the LAV-25s. What he couldn't get was any more ammo for the Chinese tanks. He was told that what 125mm ammo remained had been sent to Nevada for disposal. He made another call and there was some in a bunker waiting to be disposed of. He offered to take it off their hands and dispose of it himself. The "World's Largest Depot" was located south of Reno on highway 95 at Hawthorne, NV. Hawthorne was primarily a munitions refurbishing and dismantling plant and they had a lot of old ammo stored. (*Title 18* – you can also see that story for a long discussion of Ebola and other Hemorrhagic Fevers. The good news is that Ebola is hard to transmit.)

o

The United States had cavalry right up until the beginning of WW II. They replaced the horse with the Jeep. The origin of the term "jeep" is somewhat of a mystery. Popular notion has it that the vehicle designation "GP" (for "General Purpose") was phonetically slurred in pronunciation, eventually becoming "jeep." R. Lee Ermey, on his television series Mail Call, has stated that the vehicle was designed for specific duties and was never referred to as "General Purpose", and that the name may have been derived from Ford's nomenclature referring to the vehicle as GP (G for government-use, and P to designate its wheelbase size). However, many (including Ermey) claim that the more likely origin is a reference to a character from the Thimble Theater (Popeye) comic strip known as Eugene the Jeep. The character could walk through walls and ceilings, climb trees, fly, and just about go anywhere it wanted, and it is thought that soldiers at the time were so impressed with the new vehicle's versatility that they informally named it after the character.

Gunny didn't have any Jeeps or HMMWVs. What he wanted instead was the Jeep Rescue. It was a tuned version of a regular TJ Wrangler. Powered by a Cummins Diesel and featuring seating for five, the Jeep Rescue's primary mission is rescue capability, and its list of rescue and safety equipment is impressive:

- AC electric power (10 kW) generation in the field
- 3-D topographical mapping software and topographical navigation system
- Under-chassis, point-of-view cameras for avoiding danger in its path
- Passive, infrared (thermal) cameras for search and rescue
- Satellite telephone; VHF radio, digital video recorder with satellite transmission capability
- Retractable 4-point harnesses for vehicle occupants
- Exterior perimeter lighting
- White LEV lighting for long distance visual search and reduced power use
- Folding seats in rear compartment of vehicle
- Remote control winch – front and back

Featuring all-new body-on-frame construction with hydroformed frame rails and riding on an 80-inch wide chassis with 123-inch wheelbase and 37-inch tires, the Jeep Rescue is built for anything thrown its way. The front hydropneumatic suspension combines with the heavy-duty link-coil rear suspension to give the Rescue its solid footing on all terrain. The suspension has adjustable ride height and an additional 4-inch lift available for fording. The aforementioned 37-inch tires feature an MTR tread and run-flat capability, negating the need for a spare. On-board tire pressure control has the ability to "tune" tire pressures for maximum traction on all surfaces.

o

How can one write a story where they have 350 pureblood Arabian horses and not have a cavalry? We may not have a bugler, but by the time Mike and Bill finished moving their horses to Arizona, there most certainly were enough horses for a troop of cavalry. The Sheriff bought the 30 horses that Ryan still had for sale at the full asking price of \$10,000 each. However, money couldn't really buy you food, you had to grow it or go hungry. When Rocky learned that that Naval Aviator was shining him on and could have just as well used JP-8, he was more than a little angry with the Navy. He sent them a bill for the fuel. A certain Navy Lieutenant (O-3) wasn't a happy camper after that. The Navy sent Rocky 24,000 pounds of JP-8 instead of paying the bill. It worked for him, fuel was getting difficult to find. (Global Security should do a better job keeping their website updated too.)

Gunny has spent some of the money that Jennifer had gotten from the CDC on medical supplies. Maybe it was a good thing that the Sheriff had bought the 30 head of horses. Because the other two sections were only rented, Mike and Bill added on to the barn rather than building a new one. The newly expand barn was almost as wide as the section of ground it sat on, approaching 5,000' long. It had about 400 stalls mostly the 12ft<sup>2</sup>

stalls. The tent city wasn't actually that large, covering barely 5 acres. They were able to use some of the land – that by the houses, to build homes for Mike and Bill. The land behind the tent city was fertilized and plowed for more gardens.

The 12' stall fronts cost about \$570 each and the 12' sidewalls about \$370 each. Plus lumber to fill in the spaces in the front and sidewalls. One could figure \$1,000 a stall. The barn cost a lot of money, and Mike and Bill spent \$250,000 just expanding the barn. They needed to use golf carts in the barn, too. It was a massive operation taking care of 350 head of horses and Ramon had to hire several additional hands. This forced Ryan to buy several more doublewide mobile homes. He hadn't intended to start another city, but he was getting there. The clinic became overwhelmed and Jennifer discontinued providing medical services to people who didn't live on the ranch.

How long will people live in tents until they become unhappy? Ask the Palestinians. A very long time when they don't have to pay rent and food is included as a portion of their compensation. These were the very nice Arctic tents, with a liner and a stove. The Gunny from North Carolina also had field toilets, field showers and all manner of military surplus. And, he could get more; his normal inventory ran 2,000 tents. He was ready to retire; he was making so much money. He didn't; he could sell tents to the local authorities faster than he could get them.

To insure the comfort of the residents of the tents, Ryan got an electrician to run electricity to the tent city. It wasn't perfect, by any means, but most of the people were happy to have roofs over their heads and hot food in their stomachs. They were secure on the ranch mainly due to their own efforts. Anyone who wasn't an excellent cook didn't last long in this setting. These people weren't soldiers who had to take whatever they were served. Veterans, perhaps, but they were civilians. The Sheriff only Deputized Gunny, a temporary situation. Gunny tossed the badge in a desk drawer because he wasn't a policeman.

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"Where your badge, Gunny?" Bob asked.

"In the drawer."

"Wear it."

"I'm not a cop."

"You are the civil authority on this ranch until my Deputies or I can arrive. By extension, all of your people are considered to be members of your posse. Regardless of the circumstances, we are going to do things by the book as much as humanly possible. Wear the badge, please."

"Make someone else the Deputy. I don't want the job."

“Who is in charge of your security force?”

“I am.”

“Then you’re my Deputy, like it or not.”

“Is there a problem?” Ryan asked entering the operations center.

“Gunny won’t wear the badge I gave him, General.”

“Why not Gunny?”

“I’m a civilian security man, not a Deputy Sheriff.”

“Why does he need to be a Deputy, Sheriff?”

“General, Gunny is in charge of your security force. By extension, all of the members of the security team are members of his posse.”

“Gunny works for me. Can I be your Deputy?”

“I guess so. Raise your right hand and repeat after me...”

“... so help me God. What’s the situation around the county?”

“Not good General. We are maintaining law and order by the skin of our teeth. The Army can’t spare many soldiers to help, either.”

“Gunny had the idea to start a mounted unit. We put Lance’s son-in-law in charge of it. He’s a former Marine officer. It is sort like a cavalry unit. We have 48 troopers plus 4 corporals, and a Master Sergeant besides the Captain. They can maintain security here if you find yourself in a situation where you need help. We can spare up to about 54 people, with transportation if you require assistance.”

“Perhaps I could have my Chief Deputy come by and explain what would be required of them. Hopefully we won’t need them.”

(BTW, if you want a Jeep Rescue, they were supposed to come out in 2007, but never got beyond the concept stage. Gunny bought a CJ.) The United States was in trouble, again. Yellowstone had formed a new caldera and had spewed out almost the same amount of ash as the Supervolcano eruption 2.1 million years before. There was a great deal of seismic activity all over the world, including the US. None of the faults had produced *The Big One* and none of the 169 American volcanoes that weren’t already erupting, e.g., Hawaii, started to erupt. On the island of La Palma, in the Canaries, the volcanoes erupted again and that piece that scientists predicted would fall into the ocean fell

into the ocean. It didn't fall in a single piece, as predicted, and it didn't fall as several little pieces. It split in two, and the second half fell into the ocean about 4 hours after the first. The western Atlantic Ocean was hit by multiple tsunamis. While none were as large as imagined by the British scientists, what they lost in size, they made up for in quantity.



## The Apprentice – Chapter 12 – People Trouble

Manhattan Island sits at sea level or very little higher. Some skyscrapers survived the wall of water and others didn't. It was as simple as that. Lance's stepson and family had elected to remain in their 37th floor apartment when it was obvious that they couldn't evacuate Manhattan in time. He assumed that on 37th floor above the ground the water wouldn't reach them. He assumed correctly, however, the building collapsed. 37 floors is a long way to fall and few in the building survived, certainly not Lance's stepson and his family.

Lance's stepdaughter was of the same mind as her brother but her husband was in charge. He was prepared and when the Spanish government announced that the volcanoes on La Palma were erupting, he bundled his family into their vehicle and left the city immediately, ahead of the throng. They were in Pennsylvania when the first set of waves hit New York City and in Ohio by the time the second waves were done doing their damage.

Rocky's stepchildren were better prepared physically and mentally and left Atlanta long before the rocks fell into the water. They had finally made it to Arizona, but not without some difficulty. It had been extremely difficult crossing Texas. They were in Bisbee, at the ranch and staying with Rocky and June. Paul's children and Rocky's stepchildren were helping the men with operations at Bisbee-Douglas. The men could only devote so many hours to flying. Even with a second aircraft, they had more business than capacity. That changed after La Palma, but they still had enough business to keep them busy. Roberto was doing avionics repairs, occasionally. Primarily, he was running the repair shop and attempting to secure parts. Paul's son was handling the fuel operations.

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With the passage of time the jet fuel became harder to obtain. They were now limited to Jet Fuel A. However most business jets and commercial aircraft used that fuel. Smaller quantities of Jet Fuel A-1 were available. Because they were essential the same fuel, they only bought Jet Fuel A. I should remind you that they had a lot of #2 diesel fuel at the ranch. Although intended to run the generators, it was just stabilized diesel fuel and worked fine in the diesel vehicles.

Rather than turn out in BDUs, the individual selected to assist the Sheriff were clothed in standard western wear, jeans, western cut shirt and white western hats. White hats allowed for easier identification of the reaction team. Their protective vests, supplied by the Sheriff, already said police and had an emblem of a badge on the front left panel. The Chief Deputy provided the training but it was some time before they got called out.

Nancy, Lance's wife took the death of her son and family very hard. Ultimately Jen was forced to prescribe an antidepressant. Unable to console herself, she took an overdose of sleeping pills. As luck would have it, weather forced Lance home earlier than anticipated and he found her. She was transported to the clinic, gastric lavage administered

and she recovered. Jennifer was left with little choice except to consider something stronger, possibly an antipsychotic. This wasn't her area of expertise; she was a microbiologist and family practitioner.

The diagnosis of Major Depressive Disorder is generally not given unless the symptoms are still present 2 months after the loss. However, the presence of certain symptoms that are not characteristic of a "normal" grief reaction may be helpful in differentiating bereavement from a Major Depressive Episode. These include:

- guilt about things other than actions taken or not taken by the survivor at the time of the death;
- thoughts of death other than the survivor feeling that he or she would be better off dead or should have died with the deceased person;
- morbid preoccupation with worthlessness;
- marked psychomotor retardation;
- prolonged and marked functional impairment; and
- hallucinatory experiences other than thinking that he or she hears the voice of, or transiently sees the image of, the deceased person.

Jen referred Nancy to the hospital at Ft. Huachuca. They had a psychiatrist on staff and Nancy was a dependent of a retired military officer. Once more the General's network kicked in and Nancy was able to get treatment directly from the Army, rather from the VA. Not that I'm opposed to the Veteran's Administration, but it wouldn't be my first choice for treatment either. Too many patients or not enough resources, take your pick. People can will themselves to die, especially if they have a major illness. Bereavement might be their motivation. Heaven knows in the situation facing the country, a lot of people probably gave up. We've heard that kind of talk before. If this or that happened, I might just give up and not try to survive. Survival is a state of mind first, followed by adequate preparations. That's the lesson. Rich is a measure of your money; wealth can refer to anything, including knowledge.

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If you have your own cavalry troop, you basically have a lot of ranch hands. Mike and Bill had a few head of cattle. That changed the ranch from a horse ranch to a working ranch. It also made the ranch a better target for the hungry people. The Sheriff tried, but the Arizona Emergency Management Agency's resources were stretched to the breaking point. It could have been worse, California, Oregon and Washington could have let loose with their quakes and volcanoes. It could have been worse on the east coast too. La Palma could have fallen into the Atlantic Ocean in a single piece.

The United States began to dig out. Ray and Cindy continued in school to finish their educations. The eruption of Yellowstone affected the weather over the entire world. Some Caribbean Islands had been totally devastated by the series of tsunamis. Florida didn't make out very well either. One couldn't evacuate an entire state with less than 24 hours' notice. At the end of their third year of medical school, they interned in Tucson

and after, Ray was assigned to another hospital for his residency. Things had changed greatly and his assignment was to Ft. Huachuca. Cindy stayed in Tucson to complete her residency. Ray was sporting Captains bars these days.

The National Defense Authorization Act for Fiscal Year 2002 reduced the time in grade requirements for the military services. They had never been changed back and a bright young man or woman could easily make Captain in the span of 3 years. During times of war, promotions often came rapidly, explaining, perhaps, why these men were Generals and not officers of a lesser rank. People who achieved results often found their brevet promotions made permanent. It was a different time and the rules reflected the reality of the situation.

During a doctor's residency, correct me if I'm wrong, the doctor pursues training and experience in his or her chosen field of practice. Ray and Cindy chose different career paths; Cindy was interested in infectious diseases, Ray in surgery. Both had a secondary specialty in emergency medicine allowing them to develop the skills necessary for rapid diagnosis and treatment. There are several surgical specialties, but Ray opted to become a general surgeon. Cindy intended to continue on in school and get a degree in microbiology. Her undergraduate work had been in that direction.

◦

Too many disasters? Improbable to the point of being impossible? God has a sense of humor, people. If you want a full life, you'd better get one too. Reader's Digest claims Laughter is the Best Medicine. You should get the right attitude and prepare or am I preaching to the choir? It takes money, but beans and rice are cheap. And, don't forget the toilet paper.

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Meanwhile, back at the ranch...

"Honey, we have people at the north fence," Sabrina told Gunny.

"Roust out the cavalry troop."

Sabrina pressed a button and the PA system played, "Boots and Saddles."

"What's the idea behind the bugle calls?"

"I downloaded them from the Internet and they seemed appropriate. Hang on. Intruders at the north fence near the intersection of the first and second sections."

"They'll have Mike and Bob's cattle and some of our horses before the cavalry get there. I should have sent the Jeeps."

“They in Bisbee helping the Sheriff with the riot.”

“Where’s Ryan?”

“He went with them, he’s the Deputy.”

“I don’t like this Sabrina; our security is spread too thin.”

“You said not to use the Claymores unless there was a large number of people or they had vehicles. There are only 4 people. The troopers can handle them.”

“What if it’s a diversion?”

“I don’t see anyone else in my monitors. You’re going to get ulcers if you keep worrying.”

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Over 1 million additional people were crowded in the area south of Phoenix. Most of them were closer to Tucson than Phoenix because it was cold in Phoenix. The Army had a company in route from the border area to help the Sheriff. The Sheriff had, for the first time, found it necessary to call upon the rapid reaction force at the ranch. Food was a major problem due to the reduced growing seasons. Spring planting wasn’t that far away but they were hungry now. The system was overloaded and FEMA wasn’t much help. What food was available was difficult to transport because of the snow on the roads.

“Don’t shoot anyone,” the Sheriff instructed, “It will only make matters worse.”

“Sheriff, we don’t have many non-lethal weapons available,” Ryan replied.

“What do you have?”

“M1006 and M1029 rounds for the 40mm grenade launchers plus a few of the ABC-M25A2 riot grenades, ABC-M7A2 CS grenades and the M84 flash bangs.”

“Hopefully that will be enough to disperse the crowd. Someone turn on the fire hoses!”

“We can drive them off for the moment, but that’s not going to solve the problem, Bob, these people are hungry.”

“What do you want me to do, General? FEMA hasn’t delivered the food.”

“We could try and go after it.”

“How?”

“About 100 years ago, Berlin, Germany was faced with similar problems. Over a 15 month period, 278,228 flights airlifted 2,326,406 tons of cargo into Berlin.”

“General, I don’t have that kind of clout.”

“The C-17s can haul about 100 tons of cargo. They can land at Bisbee-Douglas and Tucson. I’ll talk to Lance and see what we can arrange.”

o

“Where would they be bringing the food from?”

“Nebraska, Iowa, Illinois and Indiana, Lance.”

“What kind of food is available?”

“Grain, meat, the usual. If we could get 100 flights into the area they could bring in 10,000 tons of food. That should tide us over until the roads are open.”

“Not by half it won’t. That’s only 20 pounds of food per person. We’d need at least 500 flights to make even the slightest difference. They only ended up building 340 of the C-17’s. I’d guess that they’re already engaged in hauling food to other parts of the country.” (Through 2005, 222 of the C-17s had been ordered.) There are still 50 of the C-5M Super Galaxies in service however. They carry more than the C-17s.”

“Not by much they don’t. They’re only rated at 135 tons of cargo. And, they need more space to land and takeoff. There is no way that Rocky can get enough fuel either.”

“I’ll see what I can do. We’ve been out of the military for a very long time, you know.”

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The longest runway (17/35) at Bisbee-Douglas (DUG) is 7,311 feet long. The elevation of the airport is 4,125.7’. The runway has a double tandem weight limit of: 250,000lbs. Tucson International’s (TUS) longest runway is 11L/29R, it is 10,996’ long and it has a dual double tandem weight limit of: 585,000lbs. The double tandem FAA GWT Evaluation was DC-10-10 315,000lbs; DC-10-30/40 400,000lbs; L-1011-1 325000lbs & L-1011-100/200 340,000lbs. Davis Monthan AFB (DMA) is only 4 miles NE. It has a 13,643’ runway, 12/30. I guess the Air Force would use their base. The long runway at EAFB is 15,013’ long. I wouldn’t advise anyone to try and land there, they have guns and not much of a sense of humor. The ends of the runway are 15’ thick and you can land anything at EAFB, if you dare. Years ago, a civilian commercial aircraft landed at EAFB in an emergency. That was before they closed the base and it wasn’t a good idea then.

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Some things are easier said than done, but in this case Lance made it happen. He didn't explain how, but soon C-17s were landing in Tucson and C-5Ms at Davis Monthan. Everyone worked to distribute the food and it helped; people stopped rioting. Ray was finishing up his first year of residency and learning surgical procedures. Cindy was doing the same but attending night school to eliminate classes she needed for graduate school. The CDC had proven the vaccine and was distributing the information to any company willing to produce the vaccine and make it available at low cost. That turned out to be only one American company, but several of the European vaccine companies were on board.

As the weather warmed, the humidity rose to uncommonly high levels. Jen got nervous and vaccinated everyone on the ranch and advised Ray to secure vaccine for the hospital at Ft. Huachuca. He told his mother he was only a Captain and Captains didn't carry much weight. Jen told Ryan and Ryan called the General commanding Ft. Huachuca. He explained the problem with the humidity, mosquitoes from Mexico, possibly with the malaria parasite. It took a while to manufacture the vaccine and Jennifer began producing all she had the capacity to create with Cindy assisting. Ray had leave coming and he helped too.

The Pentagon hadn't approved the vaccine for distribution to the military. When the first batch was completed, Jen vaccinated the members of the Sheriff's Department, mainly at Ryan's insistence. The American company that agreed to produce the vaccine for the US only produced a small quantity. Malaria hadn't been a problem in the United States unless one caught it somewhere else and brought it home. In their infinite wisdom, they only produced enough vaccine for the known cases of malaria. It was akin to the general lack of smallpox vaccine around the turn of the century. Why produce a vaccine if there wasn't a need? The second batch of vaccine was used to vaccinate healthcare professionals in southern Arizona. It took perhaps 6 weeks to process one batch of vaccine. They used the 4 containment labs to produce the vaccine. As a consequence they had 4 different batches going at one time, in differing levels of growth/production.

"I've got to get back to post, Mom. Cindy can help you process the first 8 batches and then she'll have to return to Tucson. I'm sorry that I can't stay and help, but duty calls. I'll be home on weekends unless I have duty."

"Ray I'm going to distribute the vaccine to the hospitals. They can administer it to people who contract malaria, if any."

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Mexico, the third largest country in Latin America, has made substantial inroads in decreasing its malaria burden. Between 1985 and 2003, the numbers of reported cases decreased by 97%, to 3,819 cases in 2003. No death attributed to malaria has been reported since 1982. Most cases occur in foci found mainly at the country's southern bor-

ders, and in four Northwest states (Sinaloa, Durango, Chihuahua, and Sonora) where difficult access hinders control activities.

Practically all cases are due to *Plasmodium vivax*; only 1% of cases are caused by *P. falciparum*, the species that can cause severe malaria. To date no drug resistance has been reported. 17 of the country's 32 states have not reported any case of malaria during the past 4 years, and are in the process of being certified as having eliminated malaria. Eventual elimination of malaria countrywide does not appear to be an unrealistic goal anymore.

Mexico's success is attributed to a strategy applied since the 1990's, consisting of intensive surveillance and focused, combined interventions in areas where transmission is identified. In such areas, patients and their families are treated repeatedly with anti-malarial drugs; breeding sites for mosquito larvae are destroyed or treated; and pyrethroid insecticides are sprayed as needed, inside houses and outdoors.

Intensive surveillance is a key activity:

- Due to Mexico's climatic conditions, many areas are suitable to malaria transmission and outbreaks may occur if cases are not treated promptly before the parasites spread further.
- Population movements from countries south of Mexico with higher malaria endemicity (and some with chloroquine-resistant *P. falciparum*) represent a continuous risk of introduction of malaria parasites.
- While the burden of disease may be relatively low, malaria may still affect Mexico's economy; for example, outbreaks in tourist areas may impact a major asset of Mexico's economy.

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We're not talking about SARS, Spanish Flu, or Ebola. Several mosquito borne diseases already have a vaccine. (I was vaccinated for Yellow Fever in 1963, ask the Air Force why – I wasn't going to South America or Africa that I knew of.) There are actually 2 kinds of Yellow Fever, the monkey variety and the human variety. There had been a resurgence of Yellow Fever beginning in the 1980s. Jen's vaccine would prevent and/or cure malaria. Thus when quantities were limited, she thought it best to distribute it to hospitals, for free naturally. Dr. Jonas Salk could afford not to patent the Polio Vaccine; he didn't bear the cost of developing it. Besides, wasn't it a work for hire, Salk worked for the Infantile Paralysis (Polio) Foundation?

The corollary of a nuclear winter scenario is hot dry weather. A nuclear winter could wipe out all of one year of agricultural production, and severely impair production during the second. Much livestock might not survive, and seed stocks needed for replanting might be lost. It might take up to three years to get agricultural production to a level sufficient to feed everyone now living. By the time it could be done, there would not be nearly as many people to have to feed. The process of desertification might be accelerated and run to completion within a few years, especially if the nuclear summer scenario

is valid, which could make modern civilization impossible to sustain, and reduce humanity to scattered bands of nomads. When well-fed people look upon the people suffering from famine in Africa, they could be looking at where they will be some day.

Nuclear summer isn't discussed often. Looking at the period following the nuclear winter, the author's RCM and BIM indicate that temperatures might increase above normal levels, to four-day highs as much as 12°C above normal extremes. This would be the result of many small contributions to the greenhouse effect, from CO<sub>2</sub>, H<sub>2</sub>O, O<sub>3</sub>, CH<sub>3</sub> and various aerosols injected into the troposphere and stratosphere, from CO<sub>2</sub> from the decay of dead plant and animal life, and from reduced surface albedo from rapid desertification. Positive and negative feedback factors were considered.

The model predicts that the "cold trap", which prevents H<sub>2</sub>O from entering the stratosphere, will collapse as the stratosphere is heated by the dust and soot, and that convective activity from the oceans and from patchiness in the cloud cover will allow as much as 5×10<sup>14</sup> kg of H<sub>2</sub>O to enter the stratosphere. As the dust and soot clear, the cold trap should drop and most of the H<sub>2</sub>O vapor precipitate, but as much as 5×10<sup>13</sup> kg of H<sub>2</sub>O could remain in the stratosphere, enough to cause a greenhouse warming of the surface of up to 8°C.

The model also predicts that 300 1-megaton deep-sea bursts could put as much as 5×10<sup>13</sup> kg of H<sub>2</sub>O into the stratosphere, enough to cause about 1-2°C of greenhouse warming. The model predicts about 3°C of heating from increased CO<sub>2</sub> and another 3°C from about 30 other substances, mainly O<sub>3</sub> and various hydrocarbons. These effects are not all additive, so it seems unlikely that warming by more than 12°C would result, but even 6°C would be enough to drastically affect most life forms, and 10°C could bring sustained highs fatal to most land life on earth.

The model indicates that the worst of this scenario, called the "nuclear summer", would last until about 3-5 years after the nuclear war, but temperatures elevated by 3-6°C could persist for many decades. Given certain reasonable assumptions, the long-term biological effects of the nuclear summer could be worse than those of the nuclear winter. Transition from the nuclear winter to the nuclear summer would be extremely complex, and the model does not attempt to predict how that might happen, except to suggest that stratospheric H<sub>2</sub>O vapor might accelerate the removal of dust and soot as it precipitates, shortening the nuclear winter somewhat. Conversely, dust and soot might remove more of the H<sub>2</sub>O than the model predicts.

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You probably thought I was full of beans. Mosquitoes breed in stagnant water. Cochise County is next to the state of Sonora. Most people would never think to associate malaria with a Supervolcano. If the eruption produced a scenario not unlike a nuclear war and thus something akin nuclear winter, there would also have to be a nuclear summer. Logic dictates no other choice. If there were a nuclear summer with increased water vapor in the air, malaria could be a problem.



In the fall of 2004, European manufacturers of the flu vaccine had a problem when a vast portion of their flu vaccine became contaminated. This led to a shortage of flu vaccine and many at-risk people were unable to acquire the immunization. The possibility of a malaria outbreak and an insufficient supply of a vaccine aren't simply speculation, there is a possibility. God didn't give you a head simply to hold your hat.

They planted approximately 900 acres in crops to produce food for human consumption. That is a lot of tomatoes, beans, green beans, spuds, onions, corn and chilies. They ran out of canning jars very early on. The NC Gunny found them several truckloads more. A farmer's market was set up to sell the food, a 24/7 operation. They repackaged their canned products in the cases and refilled their larders. The remainder went to the grocery stores and weren't registered with the Pennsylvania Department of Agriculture. (Reg. PA Dept. of Ag.) People didn't care.

With the summer, food was delivered by truck and trains. Authorities were now estimating that people could move home the following year in the states south of the Mason-Dixon Line. Some people didn't wait, which was fine. It meant more for the people who stayed behind. People who worked in the fields were paid in cash and produce. Everyone at the ranch with a stove helped with the canning. They did 14 jars at a time, times 2, e.g., everyone used 2 30-quart pressure cookers. They didn't pay any attention to the manufacturers recommendation (don't use on a stove). You can preserve a lot of food in 8-10 hours with 10 stoves and 20 pressure cookers.  $14 \times 20 \times 4 = 1,120$  quarts =  $93\frac{1}{3}$  cases. And this explained why they ran out of jars so quickly. They planted Kentucky wonders and harvested them for several weeks. Then the corn crop was ready and they got a single harvest of that. They had tons of potatoes and onions, dry beans, green peppers, which they froze, and chilies. There were also tomatoes to can right along with the green bean harvest.

This so-called nuclear summer was very warm, perhaps as hot as the winter was cold. It didn't come immediately, but the second summer after Yellowstone erupted was a nuclear summer. Southern Arizona is generally dry. In that in between time, they got their mosquitoes. The mosquitoes didn't give a crap about the border and they were too small to shoot down. The vaccine got a real live test this time and it worked. The first summer had smaller crops and more humidity. They couldn't feed the population of the area from 900 acres of crops, but it wasn't for want of trying.

o

"We're starting to lose people."

"You didn't think they'd stay forever, did you Gunny?"

"Not really, but they should wait a year. The US Weather Service is predicting that next summer will be hot and dryer."

“Maybe it’s just as well, we can’t air condition the tents.”

“What do you want to do about the weapons we issued?”

“We have plenty of weapons, let them keep them. They’ll probably need them when they get wherever they’re going. They can’t keep the horses of course unless they want to buy them. I doubt many people will have the money to do that, do you?”

“Not many, if any. Fuel is becoming more available now so if they can get gas and their tires aren’t rotted out they can probably get home. Did you know that Paul and Rocky bought another jet? That makes 4. They bought another Gulfstream.”

“Where did they find pilots?”

“The military has started to release people who were extended. They got some jocks from the Air Force.”

“Fighter jocks?”

“No, multi-engine people, C-37A aka Gulfstream V.”

“That’s capable of intercontinental flight isn’t it?”

“They can get to Europe. It’s a 550 they bought used with the upgraded Rolls Royce engines. It can go 7,000NM at mach .8. They are done flying themselves, you know. Paul couldn’t pass the physical last time and Rocky said he’s getting tired.”

## The Apprentice – Chapter 13 – Making Choices

“Who is going to run the business?”

“Paul’s son. He doesn’t want to go back to San Francisco. He said that as soon as he got there the San Andreas would let loose just to spite him. I’m about all used up too. Why don’t you put Lance’s son-in-law in charge of security? Sabrina and I are going to get married after all.”

“I’m only 64 Gunny, I think I’ll stick around another 6 years and see if Ray stays in the Army or gets out. As soon as Cindy finishes up Graduate school she’s going to take over Jen’s practice.”

“When will that be?”

“About 4 more years. Has Ray said anything to you about getting out of the Army?”

“Not a word. I sort of figured he might go for 20 years. He’ll be up for promotion to Major before very long. Probably about the time he finishes his Residency. He may or may not get it; it depends on whether or not they have a slot. You should still put Lance’s son-in-law in charge of security whether you stay on or retire.”

“I’ll have a word with him. And I’ll also have a word with Bob about John becoming his new Deputy.”

“I don’t know why I pulled in all of those favors to get 125mm ammo for the T-109s. We never did shoot them except in practice.”

“Has Mexico pulled their armed forces back from the border yet?”

“Not that I know of why?”

“The Army has begun pulling out its units, Gunny.”

“That’s logical. It shouldn’t matter; we still have those damned Minutemen. They have more people watching the border than the Army. They all carry weapons these days.”

“Why, they don’t have any authority?”

“One of the founders made that a policy when they restarted the operation in the fall of 2005. It is legal you know, as long as the weapons aren’t concealed. They’ve been guarding the border from Baja to Texas ever since the fall of 2005, with time out for a few disasters.”

“Is the Mexican government still bitching about them?”

“I suspect that’s why they left their Army in place.”

“We haven’t had any border crossing incidents in years. I remember hearing about the Federales crossing the border in hot pursuit of drug dealers when I was a teenager.”

“Are you going to plant a 900 acre garden this year too?”

“We won’t be able to get the help this year we had last. The back section is going into hay. We’ll get 3 cuttings of hay to bale. That should fill the barn.”

“How much electricity does that roof generate? 5,000’ of thin film ought to generate a lot.”

“More than we can ever use. The utility company will buy the extra. Are we going to store the extra tents or sell them?”

“I think we should store them. If we don’t need them Gunny says he’ll buy them back as used.”

◦

Stacy and Roy returned to school that summer to try and catch up. Cindy helped Jen in the clinic and then with the canning when the garden started coming in. They still had a lot to can but it was less than  $\frac{1}{3}$  of what they put up the previous year. Bill and Mike began to talk about moving back north. They could dismantle the stalls they added to the barn and move them. This would leave Ryan and the others a huge storage area. They offered to buy the excess hay and grain and truck it to Colorado. Ryan decided to use some of the extra space for hogs and cattle. He could keep the additional people Ramon hired to tend to the new livestock.

◦

“Med school and my internship didn’t count against my 5 year obligation. My residency does. That will only leave me with 2 years of unfulfilled obligation, Dad. Do you think I should stay in or get out?”

“It doesn’t matter what I think, what do you want to do?”

“I don’t know. By the time I complete my obligation, I’ll have 12 years in. But the word is they’re cutting back.”

“Cindy and you could always operate the clinic. Your mother is about ready to retire. I was planning on going until 70, but I’m drained. I’ll be 65 in 2050 and that might be a good time to retire. Gunny gave it up and is marrying Sabrina. Paul and Rocky are giving it up because Paul couldn’t pass the physical.”

“What’s General Soblick doing?”

“He is doing what he always does, playing golf. He’ll have Paul and Rocky to play with him and I suppose they’ll play at Ft. Huachuca so they’ll have a foursome. We’ll be cutting back on everything now that the emergency is over. The tents are coming down and we’ll store them. You cousins are pulling out and going back to Ft. Collins. I’ll use part of the barn for storage and put cattle and hogs on the far east end.”

◦

Two years later...

“I’m getting out, Major isn’t on the horizon. With the cut backs, career paths are pretty well blocked. We’ll take over the clinic and Mom and you can retire.”

“Your brother will be back in a couple of years and intends to set up his Vet practice here at the ranch. Stacy met a fellow and is getting married. Paul and Rocky sold their remaining interest in *Two General’s Aviation* to Roberto and some of the others. We pulled all of the Claymores and put them in storage too. Are you aware that the Mexican Army is still camped out across the border?”

“I don’t see why. Most of the people who came here when Yellowstone erupted have left. The coastal areas are being rebuilt and people have returned to the east coast.”

“They’re angry over the US pulling out of NAFTA for one thing. They have some pretty strong feelings over the Minutemen, too. I don’t know why they’re staying, politics, I suppose.”

“Whatever happened to Benton Village?”

“Buried under 40’ of ash. Mike and Bill plan to try and recover some of that propane that’s buried but I don’t know if they can even find the tank.”

“I’ll talk to you later Dad. I want to check in on Gunny.”

◦

“Hey Gunny how’s it going?”

“Pretty good Ray, how’s my favorite apprentice these days?”

“Cindy is expecting. I’m getting out of the Army because of the cutbacks. Do you still get around good? I thought maybe we could get in some time on the range.”

“I always have time to spend on the range. You knew I got married?”

“Sabrina? I was at the wedding, remember?”

“Not really I don’t. I’m getting old Ray. I ended up putting as much time in the civilian military as I did on active duty. Lance’s son-in-law took my place and pretty much runs the ranch for your Dad and Mom. Let me get my rifle and we’ll go to the range.”

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“I’m rusty. It’s going to take me a while to get up to speed again. It was very hard to find time to practice over the past 8 years.”

“It doesn’t appear that you’ve developed any bad habits. You should be back up to speed in no time. Does Cindy still shoot?”

“She’s had more time to keep up than I’ve had. Took some classes in the martial arts in Tucson while she was going to school. The older she gets, the more she reminds me of my grandmother. Did Dad tell you that Stacy was getting married?”

“I’ll be damned. No, I haven’t talked to your Dad in a couple of weeks. Is she going to finish her PhD in Computer Engineering?”

“Dad didn’t mention that, but she’s already working on her dissertation so I imagine she will.”

“What did Cindy end up doing, education wise?”

“MD specializing in infectious diseases with a PhD in microbiology. She said after the baby is born she wants to resume Mom’s work and work on some of the other mosquito borne diseases. There are still 4 or 5 to find cures for.”

“Dangerous stuff, that. Working on those diseases. Which one is she going to work on?”

“Dengue Fever and Dengue Hemorrhagic Fever are caused by one of four closely related, but antigenically distinct, virus serotypes (DEN-1, DEN-2, DEN-3, and DEN-4), of the genus Flavivirus. Infection with one of these serotypes does not provide cross-protective immunity, so persons living in a dengue-endemic area can have four dengue infections during their lifetimes. Dengue is primarily a disease of the tropics, and the viruses that cause it are maintained in a cycle that involves humans and *Aedes aegypti*, a domestic, day-biting mosquito that prefers to feed on humans. Infection with dengue viruses produces a spectrum of clinical illness ranging from a nonspecific viral syndrome to severe and fatal hemorrhagic disease. Important risk factors for DHF include the strain and serotype of the infecting virus, as well as the age, immune status, and genetic predisposition of the patient.”

“Sounds dangerous.”

“It is. We had over 1,000 cases in Texas last year. It will probably take her years to find a cure. She’s going to need to use all of the containment levels in the labs, too. I’ll help her where I can, but I’m a surgeon, not a specialist in infectious diseases.”

“Are you a specialist?”

“I’m a Board Certified General Surgeon, Gunny, FACS; nuts and bolts operations. It includes cancer of the breast, stomach, colon, gallbladder and rectum; outpatient surgery including breast biopsies and hernia repairs; minor office procedures including skin cancers, moles, warts, and other biopsies; non-operative and operative treatment of hemorrhoids and other rectal problems; management of acute illnesses such as abdominal pain, trauma, and bleeding ulcers; sentinel lymph node biopsies for breast cancer and malignant melanoma.”

“I’ve got a pain right about here.”

“Lay off the booze, it will go away.”

“I don’t drink much Ray. Your Dad bought me a couple of bottles of Remy-Martin and I still have part of a bottle left. That was before you got married, young man.”

“Do you really have a pain?”

“Only in my ass. You’re coming back home.”

“I’m an ass specialist. I can fix those hemorrhoids of yours.”

“Figures.”

“What figures?”

“Since you’re a smartass, it figures you’d end up being an ass specialist.”

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“When are you due?” Jen asked.

“Around Christmas.”

“Ryan’s Mom’s birthday was the 27th of December. Their anniversary was the 28th. She got a lot of her presents lumped together.”

“First baby, maybe I’ll be late. If I have the baby on New Year’s she’ll get presents from the hospital.”

“You know the baby’s gender already?”

“Not really, wishful thinking, I suppose.”

“Are you sure you want to tackle Dengue Fever? Bad disease.”

“I’ve also thought about western equine encephalitis. It’s closely related to eastern equine encephalitis and Venezuelan equine encephalitis. They’re more prevalent in the US than Dengue.”

“West Nile, EEE and WEE are probably all related. There is an animal serum for EE but we humans have to rely on DEET. But, there are a lot of cases of Dengue, too. If you pick up where I left off on malaria, you might have a head start on the vectors for the other diseases.”

“Ray can’t help a lot. He’ll be busy with his general surgery practice. And if I spend much time working in the clinic, I might not have a lot of time for research anyway.”

“There was a time several years ago when he thought about becoming a microbiologist. Then he did the interviews with the University of Wyoming and decided to go to the USMA instead. Ryan and Ray have started a tradition, so you’re probably going to have at least one of yours going to the Academy.”

“I don’t know if I want that.”

“The *Age of Aquarius* is over Cindy. The military is a noble profession. I really thought that Ray would stay in.”

“He wanted to, but with them cutting back the military, he won’t have many promotion opportunities. He’s going to stay in the Active Reserves. He said he’d have a better chance of advancing in rank in the Active Reserves. I still have to finish my dissertation. That will be a year or possibly two. But with Ray getting out, I’m not sure what I want to do. I’m going to finish up and get the PhD, but after that, I’m thinking a lot about being a stay at home mom and just a doctor.”

“You could always teach.”

“I’ve had enough of that, thank you. No, I’m not even considering teaching. I’d like to do research, but I want a family too. I think maybe having a family is my highest priority besides finishing my education. Maybe I’ll do the research and maybe not. I wouldn’t want to get anything and end up passing it to my family.”

“Ray went to talk to Gunny. I think maybe they went shooting.”

“He’s missed his opportunities to shoot, Jennifer. Heck, I’m as good a shot as he is anymore. It’s really a shame. He likes to shoot so much. But once he got busy with his residency and then practicing general surgery while he finished up his obligation, he hasn’t



had much of a chance to shoot. Everyone needs a hobby. I can remember when Gunny first taught me to shoot. I was terrified at the prospect. But then I talked to you and went ahead. I'm sure glad I did. Gunny taught me that self-defense and it turned out to be a very good thing. I wonder if that guy ever healed up. I took some more classes in grad school. But with my pregnancy, I'll back off a little and just do exercise."

"Did your knee heal up?" Jen laughed.

"I was pretty upset over that. But I took your advice and it worked out pretty well. Got myself one heck of a husband."

"I didn't get hooked up with Ryan that way; I met him in High School. His step father taught him shooting and got him a really good rifle. It was that M24 SWS that he has."

"Didn't he also get him the Remington ADL?"

"First, yes and his grandfather Roy got him the Ruger 77/22. That was quite the Christmas, the way he tells it. The M24 SWS came later and it was in .300 Winchester Magnum. Those were fun times. Ryan inherited several gun collections, you know, and I got the guns my father had. My father sort of walked on the edge like Ryan's grandfather David. That how Ryan ended up with some of his unique weapons. David had some German submachine guns and a couple of Garand rifles. He had some other things too, like hand grenades. My Dad, Rob, had a MP5-N. That's the 9mm Navy trigger group and he had the silencer. There is just about every description of firearm you ever want in Ryan's collection."

"Ray borrowed weapons from his father and taught me to shoot several different weapons. Gunny just taught me the AR-15 and to shoot the Kimber .45."

"Have you reconciled being a physician and shooting firearms?"

"Yes, of course. I don't know that my father ever got totally used to me shooting firearms. He never told Ray what he did, but I can tell you that he worked for the NSA. I don't know what he did with the NSA, he never told either mother or me."

"He was some kind of spook, probably. People in that occupation never talk much about their work. I only met your folks that one time at the wedding and reception."

"That darned mega-tsunami did them in, I'm afraid. They never found their bodies."

"I'm so sorry."

"We held out hope for a long time, but never really found out one way or another. They would have contacted someone by now if they were ok. My Dad had a little address book with everyone's name and address. It seems so unreal at times. One moment you have a family and the next they're gone. But you just have to get on with your life."

“Nancy lost her son and his family in the tsunami. She had a terrible time adjusting. She spent a while in the hospital at Ft. Huachuca. That was while Ray and you were finishing up at the University of Arizona Medical School. I tried to help her but it went way beyond my training. So I referred her to them and they got her the help she needed. Bereavement is very hard on some people.”

“I was so busy with school that I just had to cope with it. Having something to occupy my time was probably the best thing that could have happened.”

“No residual problems?”

“No. By the time we decided for certain that they were gone, there was so much going on that I just gave them a mental hug and moved on. Nancy’s problem was mostly that she had too much time to think. I didn’t have the luxury. Besides, Gunny said something that helped a little. Improvise, adapt and overcome.”

“That was a line out of a movie from 65 years ago.”

“I didn’t know. But Gunny must have laid it on Ray big time.”

“He tried. Ray was too much of an independent thinker. Ryan and I got Gunny to try and work with Ray. Ray didn’t need any working with, it seems. He just had to get a goal. He got that mostly by himself. After his disappointment with the University of Wyoming, he decided to go to the Academy and everything worked out fine. We were really worried that he had bitten off more than he could chew. But he found a way to combine both his father’s ambition for a military career and mine for being a physician. He ended up in the service longer than his father.”

“He really wanted to stay in. But he was never going to get beyond Major.”

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As you can see, Ray and Cindy had their own perspectives on what was important. Cindy wanted a family more than anything else. Perhaps to make up for the family she’d lost. Ray had wanted a military career but it had turned into a dead end. Both of them had learned what Gunny Highway had talked about in the movie. They had improvised, adapted and overcome. Lovely couple. Ray was about 34 and Cindy 31. If they were going to have their own family, it was time they got started anyway.

Ryan had wanted a military career too. But he was out of the Rangers and Airborne because of a blown knee and out of the service permanently when he took a bullet in the same knee. Still Lance had brought him back in a time of need and he’d served his country well. The Mountain Man was alive in spirit, if not in body. Ray, the Mountain Man, had always been prepared. He’d instilled that spirit into his stepson, Ryan. Ryan and Gunny had instilled that same spirit into Ray, Roy and Stacy. It would serve them

well in the coming days. This little story isn't over – we have more adventures coming. We're going to need to find out how well Dr. Ray and Dr. Cindy learned to improvise, adapt and overcome.

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The Lone Ranger had Tonto; Batman had Robin; and, in stories of this genre, the heroes frequently have a sidekick. Gunny is a great sidekick, but he's pushing 70 and using all of his energy just keeping his hot Latin Momma happy. Enter the new sidekick, White Feather, a Navaho Gunnery Sergeant just released from active duty with the USMC. That's not his real name – it's his nickname and it could have just as easily been *Lông Trắng*. His real name was Sandoval (Sandy) Shirley. The Carlos Hathcock Award is presented annually to the Marine who does the most to promote marksmanship. Sandy was a Marine Corps sniper and he'd earned the award while he was in the Corps. He didn't claim to be Carlos Hathcock, a man he revered. He owned his own M-25 rifle, too. It would be difficult to say whether he was called White Feather because of him being a sniper, because of him having won the Carlos Hathcock Award or because he owned the M-25, called a 'White Feather' by Springfield Armory. (I picked his name for a special reason.)

Sandy was looking for a job and Ray was fresh out of the Army. John hired him as his assistant in Security. Sandy had planned to retire when he had his 20 in, but with the extensions, he'd served 23 years. John happened to mention to Ray that he'd hired a former Marine Corps sniper as his assistant. Ray had been going to the range every evening trying to get his edge back. He was using one of the M24's out of Ryan's arsenal, the one that had belonged to Ray, a .308. He was getting back in shape and was consistently shooting under 1MOA out to 600 meters.

That is some very good shooting, for anyone. Ray went to the Security office and introduced himself to Sandy. He suggested that since they had the shooting sport in common, Sandy join him on the range one evening for some friendly competition. As mentioned earlier, that arsenal also included the M21 tactical rifles, Super Match rifles, etc. Ray was very comfortable with one of the Super Match rifles and wanted to see how close he could come to duplicating his accuracy level with that particular rifle. As luck would have, that occurred on the evening that Sandy showed up with his M25. Ray's Super Match had the same Krieger barrel and a good scope turned to the M118LR ammo he was using. Andy warmed up and was consistently under ½MOA. Ray was running just over ½MOA.

They fired a couple of courses of fire and Sandy beat Ray both times. Then they switched rifles and Sandy beat Ray twice more. All other things being equal, that meant that Sandy was simply a better shooter on that particular day than Ray.

"Not bad. I think that you're as good as anyone I every shot against," Sandy commented.

“I was on the shooting team at West Point several years ago. You’re the best I’ve ever shot against, bar none.”

“It’s kind of you to say so.”

“I’m not being kind, Sandy, that’s just the simple truth.”

“Did you keep up or did you get busy and let it slide a little?”

“I couldn’t find much time during my internship and residency, so I’ve just been back at it a couple of months.”

“What have you been shooting most of the time?”

“.308, M24 SWS.”

“Trifle better with it, are you?”

“Marginally so, yes.”

“Go back to shooting it for a week or so and we’ll try again.”

“Sure, why not?”

That contest was a flat out draw. Sandy explained that if the tables were reversed now Ray might have the advantage. It was, he claimed, a matter of comfort with a particular rifle after a certain indefinable point. He didn’t care for the bolt-action rifles. Yes the Corps was using the M40 and the M24, but he did better with his M1A rifle. It was just a shame they didn’t have an M-82A1M or they could shoot out to 1,000-meters. There were at least two of them in Ryan’s arsenal, Ray and Scott’s.

“The latest derivative of the M82 family is the M82A1M rifle, adopted by USMC as the M82A3 SASR and bought in large numbers. This rifle differs from M82A1 in that it has a full length Picatinny rail that allows a wide variety of scopes and sighting devices to be mounted on the rifle. Other changes are the addition of a rear monopod, slightly lightened mechanism and detachable bipod and muzzle brake. The weapon has been redesignated in the US Army as the M107. Initially the Army issued a requirement for a bolt-action .50 BMG sniper weapon, and then selected the Barrett M95. However, it was then decided that a bolt-action rifle was in fact not what the US Army was looking for. Unfortunately, money had already been allotted in the budget for an M107 rifle, so they decided to redesignate the M82A1M/A3 to M107 and purchase more of those rifles. There is not much difference between the M107 and the M82A1M/A3.” That’s the latest word on the subject.

## The Apprentice – Chapter 14 – The Other Trouble

The rifles were suppressed no less. Suppressed they had the sound signature of a .308 rifle. These were the Barrett suppressors. They were the same rifle that Sandy shot in the Corps, the M82A3. He was very proficient with the rifle and Ray wasn't. He offered to give Ray a few pointers and Ray accepted. In a matter of weeks, they were equally matched again. Ray kept working with the M1A rifles, adjusting to the semiautomatic fire. He came into his own in time. And then, he tried the McMillan TAC-50 and fell in love, again. That particular rifle was equipped with a titanium Jet suppressor. It had the Night Force 12-42x56mm Mil Dot day scope and a MUNS nightscope. He was also building a very good surgical practice. Cindy was getting closer and staying home, working on her dissertation there. Jennifer was Cindy's physician.

The actual range of the .50BMG round is 7,500-yards. One can't shoot accurately that far, but the bullet will carry that far, according to a USMC instructor in the video on Global Security where they demonstrate the M82A1M. His exact words were, 'Imagine 75 football fields, end-to-end.' He also explains the Raufoss ammunition in detail and demonstrates how it works. The ammo contains an incendiary charge in the nose, an explosive charge and a 7.62mm penetrator. Nasty. You can't wear enough body armor for that stuff.

"Did you pick out a horse?"

"Not yet, does it make any difference which one I pick?"

"Take one of mine. I have a couple of very nice geldings that you might like."

"What about the others?"

"They're to ride; I'm giving you one of mine to keep."

"How about that one over there?"

"Good choice it's a 4-year old gelding with good lines. About 15 hands."

"I understand your brother is a vet?"

"Becoming one. One more year of school."

"You have a sister, too?"

"University of Colorado, working on her PhD in Computer Engineering. Getting married in the spring when she graduates."

"Everyone in the family some sort of doctor?"

“No, Dad’s a retired General.”

“I met him, nice man.”

“You ought to get him to shoot with you. He was on the Black Knight’s Shooting Team when he went through West Point.”

“Who on the ranch is the best shot?”

“Excluding you, me. I’d say my Dad is next and then my Mom. Cindy isn’t too shabby either.”

“Are those real tanks?”

“Chinese T-109’s. The LAV-25 Ills, you should recognize. Export version is the only difference. They are fully operational. That bunker over there is filled to the brim with ammo. There’s more in the armory in the command bunker. I didn’t ask. Are you single or married?”

“Engaged. Her name is Daisy Morningstar.” (Natalie Wood was Daisy Clover and Marjorie Morningstar.)

“Set a date yet?”

“Probably this fall.

“What did you do in the Corps?”

“Infantry, later Force Recon and finally a sniper.”

“Have you met Gunny yet?”

“Nice old guy. Had a few war stories.”

“What kind of equipment did you use in Force Recon?”

“A lightweight assault vest system that incorporated protection with cargo retention capabilities. The entire FSBE kit included the vest body, a throat protector, a groin protector and an assortment of load bearing pouches. A fully loaded vest with armor plates could prove quite heavy, and was only used in high-risk DA (direct action) missions. This vest was unique in its quick release system, where we could ditch the entire vest very quickly in case of emergency.”

“This quick release (ditch) feature was developed in response to a Sea Knight helicopter crash over the Pacific, where several members of 5th Platoon, 1st Force Reconnaissance Company drowned because they could not eject their heavy armor in time to

swim away freely. Only one Marine was able to successfully ditch his equipment and survive. The FSBE vests were manufactured by Point Blank Armor (US), but Recon operators purchase additional modular load bearing pouches from a number of manufacturers. The FSBE II suite of equipment manufactured by Eagle Industries replaced the FSBE AAVs. The FSBE series replaced the older Close Quarters Battle Equipment Assault Vest (CQBE AV) that had been used by Force Recon since 1996.”

“A lightweight ballistic helmet that incorporates excellent ballistic protection with the ability to interface with most tactical communications headsets and microphones utilized by high-speed units, replacing the bulky standard issue PASGT “K-pot.” This helmet was in use with other highly-mobile units such as the Army 75th Ranger Regiment and various Special Forces operators, and was available in three design varieties. This helmet was manufactured by MSA Gallet (France). Two versions of the MICH, the 2000 and 2002 models were preferred, difference being that the 2002 has earlobes that extend about half the distance than the 2000-series MICH earlobes.”

“Seeing the limits of the standard issue M9 9mm pistol, Force Recon used a modified and improved M1911A1 .45 pistol, originally introduced late in the Philippine-American War and only replaced by the 9mm M9 due to logistic concerns. The pistol was constructed by highly skilled gunsmiths at the Precision Weapons Section at Quantico, Virginia, and were made from original service M1911 frames dating back to the 1940s. MEU(SOC) pistols used a variety of parts from different high-end manufacturers and were some of the most reliable pistols in the world.”

“When a pistol malfunctioned due to wear and was irreparable without special equipment or parts, the pistol was sent back to Quantico for repairs. Repairs included changing slides and various parts, but the frames are never changed, as the US government no longer produces them. Most US Special Forces Operators also preferred the M1911 as their sidearm. The MEU(SOC) pistol was replaced by the commercially-produced Improved MEU(SOC) pistol. The Interim Close Quarters Battle (ICQB) pistol produced by Kimber for MCSOCOM Detachment One was not a replacement for the MEU(SOC) pistol.”

“Along with these unique pieces of equipment, the we also used more common weapons, such as the M4A1 Close Quarters Battle Weapon, the M203 grenade launcher, individual parts of the SOPMOD M4 kit, the M40 sniper rifle and the Marine-specific M14 Designated Marksmen Rifle (DMR), along with the M82A3 SASR .50 anti-material weapon and so forth.”

“Is that how you became a sniper?”

“I was a designated marksman and eventually moved over after my knees began to give out.”

“Snipers do a lot of walking don’t they?”

“Yes, but the pace is a little different. We didn’t hurry so much.”

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“You’re quite the good shot, Sandy. Is it natural or learned?”

“Learned General Williams. I was trying to emulate Carlos Hathcock. I never came close, nobody ever did. A very special Marine, Hathcock.”

“Never been anyone quite like him before or after.”

“I don’t know about that General. You’ve heard of Russian Chief Master Sergeant Vasily Zaitsev and German SS Colonel Heinz Thorvald who had a duel of sorts in Stalingrad, haven’t you?”

“Those weren’t the names in the movie, if I recall.”

“Hollywood fiction, but based on a real story. It was in a book called War of the Rats. The gal in the story was actually a Russian-American. One author said, ‘In an interview on the phone with me, I asked Zaitsev that question. He said he had always felt that the Germans claimed someone named Köenig had been shot in the duel and not Thorvald because the Germans didn’t want to admit their ace was down. He opined that Köenig was very close to the German word for king, as in a chess analogy; you win the chess game when you take your opponent’s king. Z was sure the papers he took from the body said Thorvald, and that’s the way he wrote it in his memoirs. So, true or not, I went with it because the man told me so.’ Whether it happened or not is probably conjecture. But the Russians gave Zaitsev: Title of Hero of the Soviet Union; Title of ‘Honorary Citizen of the Hero City Volgograd; the Order of Lenin; 2 Orders of the Red Banner; the Order of The Great Patriotic War, 1st Class; and, various other medals. Anyway, General some other Russian sniper had 224 kills in Stalingrad. His name was Zaytsev.”

“You’re a pretty fair shot. I haven’t done a lot of shooting in quite a while. I might have been able to keep up with until Ray stole my crown. Have you shot with him?”

“It’s a draw most of the time. When I first came here, he was just getting back up to speed. Now that he’s had a chance to practice, it depends on who gauges the wind the best.”

“So what do I call you? White Feather or Gunny?”

“My name is Sandy, General.”

“Sandy, what do you make of the Mexican government keeping their troops on the border?”

“Doesn’t bother me, so long as they stay on their side.”



“What if they cross?”

Sandy looked at the ground, rubbed his toe around a bit and spat. “Well, I expect that we have to try and stop them, wouldn’t we?”

“Can’t be more than 25 of us on this ranch. How are we going to do that?”

“Twenty-five people can’t stop the Mexican Army. Have you looked at a map of Arizona lately?”

“What is I’m supposed to see?”

“Reservations. The Apaches are up there by Show Low on the San Carlos. The Hopi and we have the whole northeastern corner of the state. We don’t always get along with the Hopi, but the Sioux, Cheyenne, Blackfeet and the Sans Arcs weren’t the best of friends either. You have these 8 tanks and 3 LAV-25s. We could probably slow them down long enough for some of the people to get here and lend a hand.”

“Cultural differences, a history of US interference, expanding reservation populations, and Peabody Coal are responsible for the longstanding struggle between Navajo and Hopi tribes for certain land and resources. Between 1868 and 1991, the Navajo land base has been extended 15 times, mostly at the cost of what Hopi consider their traditional land base, but also incorporating on the northern and western edges of the reservation land of the Utes and Southern Paiutes. It is in the context of this long historical struggle that the highly publicized cause of the Navajo people living at Black Mountain on Hopi land must be understood. All of that is beside the point, General. If the Mexicans cross the border, there isn’t an Indian who won’t fight. We’ve been fighting in the white man’s wars for a century. One more time won’t hurt.

“Some of the elders have carried on oral traditions of what we did during World War II. Navaho is a complicated language and when you use code on top of it nobody has a clue what we’re talking about. All we’d need would be the radios. Of course deer rifles aren’t the same thing as main battle rifles or assault rifles, but we have a fair number of those too.”

“What would it take to delay them long enough for the Army to get here?”

“Como gear, more weapons, ammo and a few good marksmen to take out their leaders and possibly some of their vehicles.”

“I noticed you said Indian, not Native Americans.”

“We have our own names for our groups. Native American is the politically correct white man’s term. Most of us call ourselves ‘the people’ in our native tongue.”

“Have you seen what we have in our bunker?”

“Ray said you had munitions for those tanks and LAVs.”

“And rifles, mines, mortars, machine guns, assault rifles, ammo, lots of things.”

“Let me tell you what I know about the Mexican Army. Mexico’s armed forces number about 300,000 and the Army makes up about three-fourths of that total. Soldiers are armed with the FX-05 rifle, made in Mexico. M16s bought from the United States are also occasionally seen. The Navy is a completely autonomous cabinet agency and the President of Mexico is the Commander in Chief of both agencies. Principal military roles include national defense, narcotics control, and civic action assignments such as road building, search and rescue, and disaster relief. They don’t really have an Army as such. They’re most cops.”

“They must not be getting much road building done. The troops are strung out from Baja to Texas.”

“That’s what I mean, General. It’s about 630 miles from San Diego to El Paso. If you assumed that at any given time they had half of their entire Army deployed that would give them less than a Company per mile or one soldier about every 30’. We have as many of our people in Arizona as the Mexicans have on their side of the border. Plus we have the Minutemen. They’d probably love to shoot a Mexican Soldier.”

“Then I assume that you think the ranch is defensible.”

“Assume what you want, sir, we can defend the entire state for a while. How many tanks and arty do the Mexicans have? None. Like I told you, they’re mostly cops. The US Air Force could make a few passes with some of those B-52’s and wipe out most of their troops, 45 bombs at a time per plane. Or they can use the F-35s and the F/A-18Es.”

“We have mortars, heavy machine guns, AP and AT mines, so I assume you’re right and we could slow them down.”

“I understood that you had mounted troops for a while.”

“People moved on and we gradually lost our force. We had a rapid reaction force too, using the Jeep CJs. Same story there, once the ash cleared, people went home.”

“What are the two of you talking about?” Ray asked.

“Security. I’m not so happy with the Mexican Army on the border, but Sandy seems to think we can take them, if we have to.”

“He’s a Marine, Dad, what did you expect him to say? We probably can hold them off if the folks on the Reservations lend a hand.”

“I think I’m just going to fade away and let you younger guys get shot at for a change.”

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“What did he mean by that?”

“Your dad is convinced that the Méxicans might come over the border.”

“Really? What did you tell him?”

“That there are enough of my people in Arizona to slow them down or stop them.”

“Your people? Navaho?”

“Nah, all of the tribes. There are almost 300,000 men, women and children among the tribes in Arizona. The Méxican Army, if you can call it an Army, only has about 225,000 soldiers in total. They’re spread out from Baja to El Paso and beyond. They aren’t any kind of threat, Ray. I’d be more worried about a second invasion from the Russians or Chinese than I’d be about an invasion from México.”

“I’d have to agree, Sandy, but why are they still on the border? Ninety percent of the people that were here for the past 2 years or so have left.”

“I don’t really know. I can only go by what I know and what I see. Have you taken a good look at those people?”

“Hadn’t paid much attention, no.”

“We can jump in a Jeep and be at the observation point the Minutemen used to use in under 10 minutes. Get a good pair of binoculars and come with me.”

“I’ll park back here so they won’t see the vehicle. Let’s slip up to the top of the hill and you take a really good look.”

“Ok.”

“What do you see?”

“Soldiers with rifles.”

“Look closer at the soldiers and their rifles and tell me what you don’t see.”

“Magazines. They don’t have any magazines in their rifles and it almost looks like those magazine pouches are empty.”

“Right. The magazines are in the back of the vehicle in ammo cans.”

“How can you put troops on the front line and not give them ammo?”

“Watch for a while. There’s this big Sergeant over there. Pay attention to the way he’s treating the troops.”

“Ouch. He just pistol whipped one of them.”

“There are 3 noncoms with that outfit. My guess is that they have to take turns sleeping.”

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Fact: Not even professional Mexican reporters can find out anything about the Mexican Army. It is so extremely secretive. That is about the only fact that is reported about the Mexican Army. Research will show you that the French could send in their second team and defeat the Mexican Army, in Mexico. Relations between Mexican Army Officers and American Army Officers are reported as being ‘very formal’. The Mexican Army is reportedly very good at gunning down unarmed civilians and shooting at Americans, in the United States. That summarizes a full day’s worth of research on the subject.

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“Dad, I just got back from the border, there’s nothing to worry about.”

“What makes you so sure?”

“The soldiers at the border don’t carry ammunition. I’m just guessing that if the officers and noncoms got an order to invade, they’d have to issue the ammo and stay behind the troops to keep from getting shot. I’ll even go a step further and suggest that if we were to take out the officers and noncoms, the soldiers would surrender.”

“That’s a relief. Why do you suppose they’re still there?”

“Maybe they don’t have anywhere to go. We’ve almost totally stopped drug smugglers and I haven’t heard of any uprising on the news. We were taught at the Academy that the Mexican Government keeps an iron fist so far as the military goes. And we’re not talking about the President of Mexico. I’m talking about the head of their Defense Agency.”

“Good, maybe we’ll have some peace and quiet for a change. You can do your surgeries, Cindy can have babies and I can kick back with Jen and relax for a change.”

And, that was the way it was for a time. No Mexican, Russian or Chinese invasion, no mega-tsunamis, no Supervolcanoes and steadily improving weather. It was hotter than

the hobs of hell, but it cooled and slowly returned to normal. Nice. The reputation of their solid black Egyptian Arabians spread and they were selling houses as fast as they could breed them, at \$10,000 a copy. It doesn't take all that long to build up a bank account.

The barn was overbuilt, being almost a mile long. They had started out with a smaller barn but when Mike and Bill showed up with their 250 head, the easiest way to expand it had been to add on to the end. With the barn running east and west, they were producing megawatts of electricity, many, many hundreds of thousand kilowatts, anyway. The Sheriff was reelected in the next election because, all things considered, he'd done a respectable job of keeping the lid on during the Midwestern Invasion.

Christmas came and Cindy had her baby, a girl they named Rose. A year later, Cindy had a second baby, another girl, named Stacy. Keeping Cindy barefoot in the winter and pregnant in the summer became almost a regular event. Lucky number five was finally that little boy. He took his grandfather's name, Ryan. Stacy and her husband, Jim, came back to Arizona and located in Phoenix. They had 3 boys and stopped trying. Roy was out of Vet Med School at ISU and was engaged to a woman his age from Tucson. Gunny Roberts passed at age 72. They hauled him to Arlington for burial. 22 years and a chest full of medals had earned him the right.

There was a lot of breath catching to do; it had been a tough few years. Ray and Sandy kept up a regular competition at the range, shooting most of that time at anywhere from 600 to 1,000 meters. Neither man was any better than the other. Cindy, having spent most of her life in school, didn't engage in the research. She ran the clinic along with Ray and raised their children. Ray ran the clinic along with Cindy and did surgery sometimes at the Copper Queen Community Hospital but usually in Tucson. Ryan and Jen were fully retired at age 70.

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At age 40, Ray had only the regret that he hadn't had an Army career. Which, when you think back, is surprising. Ray had wanted to go to school at the University of Wyoming and become a microbiologist/physician. They were comfortable in Bisbee, had a good living, 5 fine children (what if she hadn't had a boy?), a great horse herd that produced more income than his practice. Sandy and Daisy got married and had a couple of kids too. Bought the two adjoining sections to the north from the estate when the owner died and fenced them in according to the way Gunny Roberts had fenced in the original 2 sections. Paul's son finally went back to San Francisco with his family back when they sold the business. John wouldn't move back to New York, so they settled in Atlanta with Rocky's kids. The other 3 old warhorses and their wives were all still living. You could find the men on the golf course or at the 19th hole most of the time and the wives in Tucson or Phoenix shopping.

Having your son come along when you're 40 is challenging. Grandpa Ray had been 39 when Ryan was born to Ryan and Stacy. But, he didn't come into Ryan's life until Ryan

was a teenager. The way that generations step aside and another comes along can only really be appreciated by the older generations. Ryan could clearly recall being a teenager and when his kids were the same age. Now, it was Ray's turn. And it appeared that Ray had an apprentice of his own, five of them, actually, 4 tomboys and a son. Cindy wasn't about to allow her girls grow up with the same fear of firearms that she had had. When they were old enough they would all take martial arts classes, learn to shoot, camp etc.

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In the year 2060, little Ryan turned 7. The stair steps were Jennifer 8, Ramona 9, Stacy 10 and Rose 11. Ryan was 47 and Cynthia 44. And while we're at it Ryan and Jennifer were 75. Remember that in case I forget. I don't know if there is more or not, at the moment.

You give the doc the copy of the pictures of your 6 active peptic ulcers and he writes you an Rx for Plavix. An hour later when you've gotten a headache trying to figure out why the doctor would prescribe an anti-coagulant when you have bleeding ulcers, (that were discovered because you were anemic) it occurs to you that the reason he had you on the aspirin that gave you the ulcers was because of your acute diabetic neuropathy, a peripheral blood vessel disorder. He said he didn't want you to stroke out. The Plavix was the lesser of two evils; you were more likely to stroke out than to bleed to death.

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